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TO
HIS ROYAL HIGHNESS
FREDERICK,
PRINCE of *Wales.*

S I R,

THAT Good-will to Men
which, while it is the dar-
ling Attribute of the best and greatest
of Beings, so amiably distinguishes
YOUR ROYAL HIGHNESS's Cha-
racter, encourages me to the double
Presumption of laying at Your Feet
a Work intended for the Benefit of
my Fellow-Subjects, and of hoping
that You will have the Goodness to
pardon me for it.

DEDICATION.

That YOUR ROYAL HIGHNESS
may long live to cherish the Hopes,
and compleat the Happiness of Mil-
lions, is the sincere and ardent Prayer
of,

YOUR ROYAL HIGHNESS's

most faithful,

most obedient,

and most humble Servant,

THOMAS SHORT.

P R E F A C E.

REGISTERS of Marriages and Births, and probably of Deaths also, seem of great Antiquity, as we see through the whole Old Testament: For the Children of Bastards, Ammonites and Moabites, whether descended of Proselytes, or by Intermarriages with Israelites, were not to enter into the Congregation of the Lord before the tenth Generation; nor of the Edomites and Egyptians before the third Generation, Deut. xxiii. which shews the Necessity and Use of publick Registers, like those in our Bishops Courts. The Jews that had married strange Wives during the Captivity, after their Return were obliged to put away both them and their Children, Ezr. i. 9, 10. We have also a very clear Account whose Descendants they were that returned from Babylon, Ezr. ii. Nehem. vii. and the exact Numbers that died in several pestilential Visitations, even during the Peregrinations of Israel in the Wilderness; which Things

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seem

seem to require Registers. The 5th and 11th Chapters of Genesis are plain Bills of Mortality. The chronological Genealogies are Registers; and the longest Genealogy on Record, we have Luke iii. even for 4000 Years. All Nations of every Age (especially since the Use of Letters) have kept Registers, or Records of the Births, Marriages, Offspring and Deaths of their Patriarchs, Princes, and great Men (a few ignorant and barbarous Nations excepted, who knew not the Use of Letters) as is evident from the Fragments of Rolls or Records of Babylonians, Medes, Persians, Egyptians, Grecians, &c. that History hath handed down to us through so many Vicissitudes of Government, People, Languages, Religion and Customs. In Imitation of which, Religious Houses, even in the darkest Times of Popery, kept Registers of the Promotions and Deaths of their Dignitaries; and though a Monkish Philosophy, or rather Ignorance, destroyed or hindered the Growth of useful Sciences, yet are we indebted to some scattered Gleanings in their Writings, for several abrupt Hints on Weather, Meteors, Seasons, Food, and Epidemic Diseases, for several Centuries; which, if collected and properly used, might probably be of no contemptible Service in Physick and natural Philosophy. But of whatever Antiquity Registers are, yet neither a right Method of

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of keeping them, nor their very extensive Uses, were so easily discovered. At what Time general Registers of all Weddings, Births, and Burials, came first to be kept in Cities, Towns, and Country Places, I cannot say; only in several Parts of Germany, they seem to have begun about the latter End of the fifteenth Century, as appears from some good ones commencing with the 16th Century. Probably it was in Imitation of them, that King Henry the Eighth, by Advice of Thomas Lord Cromwell, Earl of Essex, and the rest of the Privy-Council, gave Orders, Anno Dom. 1538, that the Incumbent of every Parish should keep a true and exact Register of all Christenings, Weddings, and Funerals in his District, with what farther View it is now impossible to say with any Certainty. This Order was but little regarded in many Places, till Queen Elizabeth in 1558, which was twenty Years after, sent out another for keeping them more exactly; yet after all they were but remissly kept in many Parishes, and often committed only to loose Papers; by which Means some were lost, others rotted in damp Churches, or were devoured by Rats and Mice. To remedy these Evils, the Clergy were charged, in 1559, that for the future all Registers should be kept in Parchment Books only, and that all preceding ones, that could be found, should be transcribed into new Books.

Hitherto

Hitherto their chief Design seems to have been only to prove the Birth, Death, and Descent of private Persons, and that the Civil Magistrate might more readily and surely inspect the publick Health, or the Invasion, Progress, and Effects of Epidemics or Endemics, in Cities and Towns. But no Place in England slighted those Charges so much as London; for, except in two or three Years of great Plagues, we find none of their Bills before the Year 1604. And even to this Day, they would be much better omitted than printed, except they were more exact, for they give us no Weddings, and only a Part of the Buryings, there being thirty-three Burying-places belonging to the Established Church, within the Bills of Mortality, never to this Day taken into the Bills, besides thirty-two more belonging to Dissenters, foreign Ambassadors, Jews, &c. But however remiss the City may be in theirs, yet I have procured several exact Country Registers, commencing with 1538, and continued without one Chasm for above 200 Years. These are far more valuable than the late ones since 1644: For neither City nor Country Registers, where there has been, or still is, any considerable Body of Dissenters, Popish or Protestant, are to be much relied on after the last Period that the Division broke out in the Church. Though the Children of Dissenters are not baptiz-
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zed at Church, and perhaps too seldom registered there, yet their Marriages and Buryings being at the Church, and registered, these two being given, it is easy to come pretty near a third, especially when compared with the former Part of the Register before 1644, if existing. But if a Body of People partake with the Church in no Ordinances, nor keep Registers of their own; or if we cannot come at them though they do, such make the publick Registers useles in many Respects. In some Places also where there are no Dissenters, Registers are little to be regarded, on account of several unhappy concurring Circumstances, as the Negligence, or frequent Absence of the Register Keeper, the Ignorance, Poverty, Mistakes, or Prejudices of several of the People; but still, where any valuable natural Uses are to be made of Registers, Country, not City Registers, must be consulted and trusted: Though for some medical Purposes, not Country, but City and Town Registers are best.

The several Alterations and Additions made to the London Bills may be seen in Major Graunt's Observations, and the ingenious Mr. Maitland's late Survey of London; which they, with Davenant in his Essay how to make the People Gainers, Sir William Petty in his Discourses before the Royal Society, Derham in his Physico-Theology, &c. have happily applied to se-
veral

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veral political, civil, arithmetical, and natural Uses; but besides the Omission of many natural Observations, none have tried whether they might afford any Hints of medical Uses; or what Soils, Situations, Trades, Manner of Life, &c. are best adapted to Health and Long Life, or the contrary. Or if they are unhealthy, whether they are equally fatal as well as sickly; or in what Degree, to what Age, Sex, and Constitution; in what Seasons, Weather, Periods, and at what Distances; and whether by chronic or acute Diseases: Or whether a Mortality moves with a quick, slow, or moderate Pace; whether it proceed chiefly from Epidemics or Endemics, where the fatal Diseases that overrun the Nation begin, which Way they extend and spread, where and how they terminate; or whether the more cultivated and populous any Place of the Country is, it be more healthy or sickly; in what Soils, and in what Weather or Season, each Epidemic is most favourable, severe or fatal; whether healthiest or sickliest Places are most prolific or barren; which of them produces most Males or Females, or whether they bear nearly an equal Proportion of both; where most of those baptized live to be married, or where fewest die in Childhood: What Proportion one Age or Country bears to another in Health, Prolificeness, and Long Life, or in Sickliness, Sterility,

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rility, and Death; what are the Effects of our several Variations in Diet, Drink, Diversions, &c. And perhaps in Cities and great Towns, where Physicians have been much employed, some tolerable Guesses might be made of the different Successes of the sundry Modes and Changes in the Practice of Physick, as of the Hippocratical, Galenical, Paracelsian, Willisian, Sylvian, Helmontian, and Mechanical, or whether the cold, temperate, or hot Regimens, the alterative, or evacuant Methods, succeeded most happily in Fevers and Acutes: Or whether, by consulting and perusing many Registers from different Parts of the Nation, any tolerable Guess can be made of the Attacks and Duration of Epidemics: Or whether, or how far Exhalations, Difference of Seasons, sundry Alterations of Air and Weather, Meteors, Comets, Conjunctions or Oppositions of Planets, Eclipses of Sun and Moon, Rains, Droughts, Frosts, Colds, Heats, or unwholsome Foods, &c. affect human Bodies; whether Epidemics depend on the sensible or insensible Qualities of the Air, or on either. Whether rocky, clayey, sandy, chalky, gravelly, marshy, lakey, wet, woody, low, heathy, high, mountainous, bare, barren, or fertile Soils, are most healthy or sickly, and in what Proportion they are so. If their Distempers are the same, and happen near the same, or at different Times, or at shorter,

ter, longer, or equal Distances. To what Diseases each Soil is chiefly liable, which come ofteneſt, and with moſt Severity or Mildneſs. What Places afford moſt Exports, or require the frequenteſt and largeſt Supply. What Seasons of the Year are moſt prolific or mortal either to Males or Females. Theſe are only a few of the many neceſſary and uſeful Things that have hitherto been made only Matter of Speculation and Diſpute, but could never otherwiſe be truly determined, but by the Help of Registers. Hence it undeniably follows, that we are never to expect a tolerable Hiſtory of Epidemics or Endemics, without cloſe Application to Registers of different Places, and comparing them with Hiſtories of Diſeaſes, Air, and Weather. As our Collection of Registers is but ſmall (though the largeſt and wideſt I have yet been informed of in any private Hand) I ſhall only touch on a few of thoſe Things; nor do I expect that the few Inferences I have made, however plainly and truly deduced, ſhould be taken for final and general Concluſions, extending to all Places and Countries at all Times.

Several other Reaſons may be given for a freſh Review of the Bills of Mortality; as Graunt has wholly omitted the Country Bills, and only made his Obſervations on thoſe of the City, and three Market Towns, all in the South; and if he had collected
never

never so many Bills from different Places, (not to mention all the above Omissions) yet they had been only for one Period of Time; and since his Time, People, Trade, and Riches, are greatly encreased, and with them Luxury, Voluptuousness, Intemperance, Debauchery, &c. of whose Effects we can now easily judge. From his Want of Country Bills, he could not enquire nor discover distinctly the Effects of different Situations, Soils, &c. After all, a larger, wider, and faithfuller Collection of just Vouchers, will still afford further and clearer Matter, of more extensive Benefit. Tho' Davenant's Essays how to make the People Gainers in the Way of Trade, be a most ingenious, useful, and excellent Piece, and the Perusal never can be unseasonable for Englishmen; yet his Inferences are often made too much at random, as his Vouchers from King and Gregory must not be deemed exact, being taken from the Pole-Books, and Books of Assessments on Marriages, Births, and Burials; Taxes that many poor People could never pay, who therefore were not enrolled. Taxes are of themselves odious to a free People, the Engines of arbitrary Power, and will always go heavily down in a limited Monarchy; they are the expiring Agonies of a sinking State, only excusable in the most urgent Necessities of a distressed Government, after all the Instruments and Means of Luxury, Voluptuousness,

ousness, and Intemperance, have been first rigorously taxed, and all proves insufficient to answer the End. Those mentioned above were never rigorously collected, nor could they from such a Number of insolvent Paupers, as must necessarily swarm then. To these Observations I have added large Abstracts of Major Graunt, and of Mr. Davenant, Sir William Petty, Derham, &c. that the Reader may at once have a View of all said on the Subject. I here acknowledge the Favour, and return hearty Thanks to those ingenious worthy Gentlemen, who so readily contributed their Assistance to this Work, by sending in seasonably such a Number of Materials for it. Only the wretched Lay-Impropiator, who starves the Church and Souls to aggrandize his Family; and such as can endure no Schemes or Improvements but what are of their own Invention, not only denied their Help, but were displeased with such as were more generous.

OBSERVATIONS

O N

THE BILLS OF MORTALITY.

AS no true Estimate can be made of the several Degrees of Health and Measure of a Country Life, from the Births and Burials of large Towns and Cities, where a Variety of avoidable and inavoidable Causes concur, to impair Health, and often shorten Life in all Ages and Sexes: I have therefore begun with the Country Registers, or Bills of Mortality; especially as a rural Life was the first State of Mankind, and as it is still the healthiest, and affords the truest and most innocent natural Pleasures: For there (except in great, rich, or opulent Men's Houses) still remains such Vestiges of Virtue, Sobriety, Regularity, Plainness, and Simplicity of Diet, &c. as bears some small Image or Resemblance of the primeval State. *England*, at present, must
B by

by no means be allowed to be the healthiest and best Climate in the World, nor must be taken as such; it can only be a Standard for itself, which Standard will vary, not only according to the several Customs, Manners of Life, and new Opinions introduced, but according to the different Seasons, Weather, Productions of the Earth, Constitutions of the Air, State of neighbouring Countries, and many other Causes. For *Britain* is only a northern Island, surrounded by Seas, and, according to Dr. *Halley's* Computation, from the *Lizard* Point to *Caithness*, lies between 49 Degrees 55 Minutes, and 58 Degrees 35 Minutes of North Latitude. And as Dr. *Claremont* *, (a Physician of *Lorrain*, who lived and practised Physick several Years in *England* and *Wales*) after he has passed a very beautiful Encomium on *England*, says, at his first coming into the Island, he thought *Britain* was blest'd with the healthiest Air in the World, till he often observed the Inhabitants languish long and miserably, under chronic and contagious Diseases, without much Benefit from Medicine; and saw them afflicted with Ulcers, bad kinds of Fevers, and other Maladies, rare in other Countries, but endemic and familiar to the *English*. This made him change his Opinion, and from several cogent Reasons to conclude, that, in general, the Air on the Island was worse than that on the Continent; and still more noxious as it extended further from the main Land, because of Fogs rising out of the Sea, scarce dissipable

* *De aëre, locis, & aquis Angliæ.*

fipable by the Sun in Summer, far less in Winter. The Sky, is commonly thick and cloudy, not only in Winter, but in the middle of Summer. It is seldom clear, the Weather mostly like Autumn or Winter. If it's clear a few Days, it's presently cloudy or sultry; then Gluts of Rain for several Days, with a close suffocating Air. Hence arise many and tedious Disorders, especially Autum-nals. Though this in the general is true, yet some Places in the Island are far healthier than others, as has been often observed: For when the Plague made sad Havock in *London*, and some maritime Places, it scarce touch'd the *English* Continent. The rough and harsh Voice of the Inhabitants, is a Proof of the Grossness of the Air. Most of the Year is cloudy, misty, rainy, or stormy; in Winter especially, with Frost and Snow. He saw the Earth hard frozen and covered with Snow for several Months together, even on the very Sea Coast. None, says he, is fitter to judge of the *English* Air, than an *Italian*, *Frenchman*, or *Spaniard*, for a few Years Residence in it, makes a total Change in his Constitution. It agrees pretty well with the bilious, sanguine, and melancholy, but woe to the pituitous and catarrhous there. The Wind here blows from all Quarters. Terrible Thunder is rare in *Eng-land*, but Lightenings are very frequent. Their Earthquakes are seldom and slight, the Earth being solid; or if hollow, it sends out Springs of various Qualities, according to the Ground they rise out of. Their River Waters, at a

(4)

Distance from their Origin, are generally naught; and their putrid Marsh Water far worse. He reckons the Waters of the Country in general to be bad; for the Sky being mostly cloudy, the Sun has little Influence on Springs and Rivers. The Country abounds with medicinal Springs, fitter for restoring than preserving Health; they derive their Virtues from the Soils they wash, which is mostly good; except where the Ground abounds with Minerals or Fossils; or the Water stagnates, one is barren Soil, and the other rotten. Thus far our Author. But *England* being a trading, rich, plentiful Country, affords other Causes of Diseases and Death to the imprudent, incautious, luxurious, sensual, and intemperate, as we shall see hereafter.

T A B L E F I R S T

Consists of two Periods separated by a double black Line. The Columns of each Table, after the first and second, are the same in both Periods. Column first, the Names of the Country Parishes or Villages, whose Registers are extracted in the following Table. Column second, the Names of the Counties in which they lie. Column third, the Number of Years for which we have the Register during the first Period, or preceding 1644--45—or 46, &c. including both Years specified; except in either Period there was a Chasm in the Register, or it was neglected, or ill kept. In that Case we only take the Number of Years that may

(5)

be depended upon. Column fourth, the Soil or Situation of each Parish, where observe h. stands for high, l. for low, d. for dry, o. for open, g. for Gravel, or gravelly; s. for Sand, or sandy; m. for mountainous, r. for rocky, ls. for Lime-stone, s. South, n. North, e. East, w. West, wt. wet, c. Sea-coast, rf. rich Soil, le. light Earth, Land, or Soil, wy. woody, oy. ouzy, fy. springy, or full of Springs; cy. Clay, or clayie; v. various Soils, e. enclosed, my. marshy, or fenny. Column fifth, the prime Proportion of Christenings to Burials, according to the two or three first Figures or Numbers only, without regard to the lesser, or Fractions. Column sixth, the Number of Years in the second Period; in both Periods the first Year in each, is the Year when our Abstract begins, the other the Year it ends with. Column seventh, the Proportions between the Baptisms and Buryings in that Time. Column eighth, in the second Period, shews in what Parishes there are Dissenters, and whether a few, several, many, or none at all, by the Letters f. s. m. o.

B 3

Period

PERIOD First. PERIOD Second.

| | | 1538 | 1737 | f. d. o. | 31 to 20 | | 1644 | 1733 | 23 to 20 | o |
|-------------------|---------------|------|------|---------------|----------|----|------|------|----------|-----|
| Worklop | Nottingham | 138 | 1640 | h. m. r. | 10 | 5 | 1670 | 1739 | 22 13 | o |
| Beely Chapple | Derby Peak | 1573 | 1640 | d. g. o. | 18 | 11 | | | | o |
| Cathorp | Warwickshire | 1595 | 1640 | cl. h. d. r. | 35 | 28 | | | | f. |
| Stoke Damarel | Devon | 1543 | 1643 | ne. rf. d. | 82 | 49 | | 75 | 22 19 | o |
| Churflow | Devon | 1560 | 1640 | wt. w. wy. c. | 10 | 6 | 1653 | 1736 | 39 29 | o |
| Foxton | Leicester | | 50 | h. o. d. | 14 | 8 | 1649 | 1742 | 64 45 | o |
| Slawston | Leicester | 1588 | 1634 | l. d. h. d. | 48 | 29 | 1635 | 1738 | 13 10 | vf. |
| Medbourn, c. Holt | Leicester | | 106 | d. o. | 65 | 42 | 1649 | 1737 | 24 19 | o |
| Stoke Hammond | Buckinghamsh. | | 69 | cl. f. cy. | 56 | 31 | 1646 | 1736 | 37 27 | o |
| Welton, c. Sutton | Northampton | | | d. o. | 55 | 33 | 1645 | 1742 | 39 32 | o |
| Walcote | Norfolk | 1558 | 1644 | l. o. d. | 29 | 19 | 1648 | 1733 | 51 40 | o |
| Thribergh | York | 1599 | 1647 | v. hy. d. | 85 | 56 | 1629 | 1743 | 19 14 | o |
| Wisper | York | 1574 | 1629 | v. d. g. | 40 | 23 | 1645 | 1735 | 37 27 | f. |
| Eccington | Derby | 1559 | 1640 | f. d. o. | 83 | 45 | 1646 | 1742 | 95 78 | f. |
| N. Luffenham | Rutland | 1573 | 1645 | v. ls. d. h. | 28 | 19 | 1700 | 1734 | 27 22 | f. |
| Hope | Derby Peak | 1600 | 1642 | m. r. d. o. | 43 | 29 | 1650 | 1733 | 23 19 | f. |
| Bradfield | York | 1559 | 1649 | o. d. le. | 6 | 4 | 1658 | 1733 | 5 4 | o |
| Kirkanston | York | 1578 | 1642 | o. s. d. | 53 | 33 | 1645 | 1732 | 48 39 | o |
| Baſton | Norfolk | 1558 | 1644 | o. d. le. | 59 | 38 | 1651 | 1742 | 40 35 | o |
| Mercet | Rutland | | 61 | o. d. le. | 81 | 54 | 1646 | 1700 | 13 11 | o |
| Raunds | Northampton | | 30 | m. ls. d. | 77 | 54 | 1644 | 1735 | 29 22 | o |
| Darby | Derby Peak | 1610 | 1644 | o. d. g. | 35 | 22 | 1643 | 1737 | 11 9 | o |
| Bolton on Dera | York | 1619 | 1643 | l. d. | 65 | 43 | 1643 | 1732 | 37 33 | o |
| Bamburrow | York | 1561 | 1642 | h. d. le. | 77 | 54 | 1645 | 1738 | 93 77 | o |
| Newton Farrers | Devon | 1600 | 44 | | | | | | | |

Difference betwixt Births and Burials in both Periods, as 11 to 7th as 8 to 6 th.

PERIOD First. PERIOD Second.

| | | 38 l. wy. d. | 19 13 | 1641 | 1741 | 46 to 43 |
|------------------|-------------|--------------|-------|------|------|----------|
| Southwick | Northampton | 1545 | 25 | 58 | 1733 | 21 18 |
| Stuntney | Cambridge | 26 | 42 | 1723 | 42 | 43 41 |
| Hallaton | Leicester | 48 | 26 | 1646 | 1736 | 64 47 |
| Slanton | Leicester | 1567 | 12 | 1646 | 1736 | 13 10 |
| Ackworth | York | 1609 | 17 | 1701 | 1737 | 81 57 |
| Felkirk | York | 1564 | 85 | 1645 | 1736 | 11 9 |
| Mexburrow | Derby Peak | 1574 | 11 | 1663 | 1737 | 24 17 |
| Baslow | Ditto | 1559 | 41 | 1683 | 1738 | 25 19 |
| Volgrave | Ditto | 1539 | 35 | 1640 | 1737 | 11 7 |
| Edenfore | York | 1558 | 23 | 1649 | 1742 | 71 51 |
| Ecclesfield | York | 1598 | 28 | 1677 | 1733 | 14 11 |
| Tankersley | Derby Peak | 1579 | 22 | 1673 | 1733 | 20 17 |
| Matlock | York | 1558 | 30 | 1638 | 1737 | 15 12 |
| Roydon | York | 1575 | 10 | 1632 | 1737 | 14 11 |
| Darton | Nottingham | 1559 | 13 | 1646 | 1736 | 6 5 |
| Norwell | Peak | 1638 | 9 | 1661 | 1739 | 23 23 |
| Longton | Thane | 1566 | 29 | 1644 | 1733 | 48 37 |
| St. John Baptist | Northampton | 1614 | 8 | 1655 | 1738 | 15 11 |
| Kingstunton | Ditto | 1590 | 13 | 1642 | 1737 | 26 23 |
| Kingfield | Derby | 1560 | 22 | 1648 | 1738 | 55 43 |
| Dronfield | York | 1558 | 7 | 1656 | 1737 | 35 27 |
| Silkston | York | 1571 | 35 | 1661 | 1729 | 23 17 |
| Marr | Derby | 1630 | 19 | 1643 | 1736 | 29 22 |
| Eyam | York | 1559 | 10 | 1644 | 1738 | 5 4 |
| Brul | | | | | | |

as 73 to 38.

as 59 to 41.

| | | PERIOD First. | | PERIOD Second. | |
|-----------------|------------|---------------|-----------|----------------|------|
| | | 34 | o. g. le. | 6 | 5 |
| Wentworth | York | 1561 | 1627 | 24 | 19 |
| Darfield | York | 1582 | 1651 | 25 | 21 |
| Hadfield | York | 1558 | 1605 | 24½ | 21 |
| Handsworth | York | 1620 | 1647 | 53 | 43 |
| South Kirby | York | 1571 | 1644 | 31 | 24 |
| Carcolton | Nottingham | 1600 | 1649 | 39 | 31 |
| Hoyton Pannell | York | 1630 | 1645 | 39 | 33 |
| Yealuton | Devon | 1612 | 1642 | 38 | 31 |
| Kingsbridge | Devon | 1567 | 1638 | 94½ | 49 |
| Country Parish | Hampshire | 1560 | 1640 | 12 | 9 |
| Conisburrow | York | | | | |
| Wing | Rutland | | | | |
| Tickhill | York | 1567 | 1645 | 29 | 25 |
| Boliver | Derby | 1615 | 1646 | 71 | 61 |
| Brodsworth | York | 1539 | 1634 | 55 | 49 |
| Adwick-on Dearn | York | 1570 | 1638 | 33 | 26 |
| Harthill | York | 1546 | 1648 | 37 | 30 |
| Sprotburrow | York | 1558 | 1640 | 80 | 75 |
| Laughton | York | 1583 | 1644 | 95 | 81 |
| Wickersley | York | 1606 | 43 | 21 | 15 |
| Brotherton | York | | | 46 | 37 |
| Mattersey | Nottingham | 1538 | 1736 | 96 | 85 |
| Hatherfage | Derby | | | 67 | 56 |
| Ranfield | York | | | 42 | 32 |
| Hooton Roberts | York | 1623 | 47 | 10 | 9 |
| | | | | 1653 | 1733 |
| | | | | 35 | 28 |
| | | | | as 7106. | |

as 7106.

| | | PERIOD First. | | PERIOD Second. | |
|---------------|------------|---------------|------|----------------|---------|
| | | 1597 | 1646 | m. oy. | 11 to 9 |
| Ichley | York | 1597 | 1646 | m. oy. | 11 to 9 |
| Ashford | Derby | 1623 | 1743 | l. ls. d. wy. | 38 38 |
| Scarliff | Derby | 1628 | 45 | d. | 19 17 |
| Minster | Thanet | 1562 | 1640 | | 14 15 |
| Hearn | Kent | 1558 | 1644 | | 24½ 25 |
| S. Collingham | Nottingham | 1558 | 1636 | | 10 11 |
| Glofop | Derby Peak | 1621 | 50 | | 91 93 |
| Letwell | York | 1600 | 43 | | 20 30 |

Parishes 83.
as 227. 238. Parishes 80. 333. 263.
Thus the double Periods of some of the last Parishes compared, shew the Necessity and Benefit of draining
of stagnant Water, and clearing Wood from near Villages and Dwellings.

The Second PERIOD continued.

| | | 1653 | 1736 | h. d. o. | 31 19 |
|--------------------|-------------|------|------|---------------|-------|
| Cumberworth | York | 1653 | 1736 | h. d. o. | 31 19 |
| Balbour | Derby | 1682 | 1734 | d. ls. | 73 51 |
| Tinsley Chapple | York | 1711 | 37 | d. g. o. | 5 5 |
| Acklam | York | | 45 | h. d. o. | 41 27 |
| Rinmore | Devon | | 59 | tc. rf. d. f. | 17 13 |
| Tidswell | Derby | | 15 | ls. o. d. l. | 89 63 |
| Newbottle | Northampton | 1658 | 1737 | d. o. le. | 52 35 |
| Winstler, c. Elton | Derby | 15 | 1738 | h. ry. ls. o. | 77 55 |
| Wortley | York | 1677 | 1733 | m. ry. d. o. | 10 7 |
| Kirkheaton | York | 1706 | 34 | o. d. ry. m. | 18 11 |
| Pleasley | Derby | 1644 | 1738 | d. g. ls. r. | 95 65 |
| Todwick | York | 1673 | 1733 | l. g. w. | 26 17 |
| Buxton | Derby | 1708 | 1734 | m. d. o. ls. | 50 37 |
| Afton | York | | 76 | h. o. g. | 23 17 |

near 60 to 42.

| | | PERIOD First. | | | | PERIOD Second. | | | |
|-----------------|------------|---------------|-----------|------------------|----|----------------|------|------------------|------------------|
| | | 34 | o. g. le. | 6 | 5 | 1660 | 1732 | 20 | 16 $\frac{1}{2}$ |
| Wentworth | York | 1561 | 1627 | 24 | 19 | 1709 | 1733 | 93 | 77 |
| Darfield | York | 1582 | 1651 | 25 | 21 | 1653 | 1733 | 11 | 9 |
| Hatfield | York | 1558 | 1605 | 24 $\frac{1}{2}$ | 21 | 1656 | 1728 | 24 | 17 |
| Hanfworth | York | 1620 | 1647 | 53 | 43 | 1648 | 1737 | 90 | 65 |
| South Kirby | York | 1571 | 1644 | 31 | 24 | 1641 | 1734 | 25 | 22 |
| Carcolston | Nottingham | 1600 | 1649 | 39 | 31 | 1650 | 1737 | 38 | 35 |
| Hoyton Pannell | York | 1630 | 1645 | 39 | 33 | 1646 | 1738 | 17 | 15 |
| Yealinton | Devon | 1612 | 1642 | 38 | 31 | 1664 | 1739 | 14 | 15 |
| Kingsbridge | Devon | 1567 | 1638 | 94 $\frac{1}{2}$ | 40 | 1639 | 1739 | 58 | 11 |
| Country Parish | Hampshire | 1560 | 1640 | 12 | 9 | 1641 | 1733 | 13 $\frac{1}{2}$ | 12 |
| Comilburrow | York | | | | | 59 | 1742 | 37 | 28 |
| Wing | Rutland | | | 29 | 25 | 1646 | 1737 | 28 | 31 |
| Tickhill | York | 1567 | 1645 | 71 | 61 | 1656 | 1710 | 11 | 9 |
| Bolliover | Derby | 1615 | 1646 | 55 | 49 | 1635 | 1733 | 66 | 57 |
| Brodsworth | York | 1539 | 1634 | 33 | 26 | 1690 | 1737 | 15 | 13 |
| Adwick-on-Dearn | York | 1570 | 1638 | 37 | 30 | 1649 | 1737 | 6 | 5 |
| Harthill | York | 1546 | 1648 | 80 | 75 | 1641 | 1734 | 67 | 60 |
| Sprotburrow | York | 1558 | 1640 | 95 | 81 | 1645 | 1733 | 12 $\frac{3}{4}$ | 11 |
| Laughton | York | 1583 | 1644 | 21 | 15 | 1644 | 1733 | 62 | 55 |
| Wickersley | York | 1606 | 43 | 46 | 37 | 1641 | 1737 | 13 | 12 |
| Brotherton | York | 1538 | 1736 | 96 | 85 | 1663 | 1738 | 71 | 71 |
| Mattersey | Nottingham | | | 67 | 56 | 1646 | 1735 | 13 | 15 |
| Hatherlage | Derby | | | 42 | 32 | | | | |
| Ranfield | York | 1623 | 47 | 10 | 9 | 1653 | 1733 | 35 | 28 |
| Hooton Roberts | York | | | | | | | | |

as 7106.

as 10108.

| | PERIOD First. | | | PERIOD Second. | | | | |
|---------------|---------------|------|---------------|----------------|------|------|-----------|----|
| Ychley | 1597 | 1646 | m. oy. | 11 to 9 | 1665 | 1736 | 13 to 11½ | o |
| Ashford | 1623 | 1743 | 1. ls. d. wy. | 38 38 | 1669 | 1738 | 65 55 | f. |
| Scarliff | 1628 | 45 | d. | 19 17 | 1646 | 1738 | 65 54 | o |
| Minster | 1562 | 1640 | | 14 15 | 1640 | 1733 | 15 12 | o |
| Hearn | 1558 | 1644 | | 24½ 25 | 1661 | 1733 | 20 21½ | o |
| S. Collingham | 1558 | 1636 | | 10 11 | 1638 | 1736 | 58 61 | m. |
| Gloftop | 1621 | 50 | | 91 93 | 75 | 1737 | 16 19 | f. |
| Retwell | 1600 | 43 | | 20 30 | 1653 | 1733 | 31 30 | |

Parishes 8; as 227. 238. Parishes 80. 333. 263.
Thus the double Periods of some of the last Parishes compared, shew the Necessity and Benefit of draining of stagnant Water, and clearing Wood from near Villages and Dwellings.

The Second PERIOD continued.

| | | | | | | | |
|--------------------|-------------|------|------|---------------|----|----|---|
| Cumberworth | York | 1653 | 1736 | h. d. o. | 31 | 19 | o |
| Balbour | Derby | 1682 | 1734 | d. ls. | 73 | 51 | o |
| Tinsley Chapple | York | 1711 | 37 | d. g. o. | 5 | 3 | o |
| Acklam | York | | 45 | h. d. o. | 41 | 27 | o |
| Rinmore | Devon | | 59 | lc. rf. d. f. | 17 | 13 | o |
| Tidswell | Derby | | 15 | ls. o. d. l. | 89 | 63 | f |
| Newbottle | Northampton | 1658 | 1737 | d. o. le. | 52 | 35 | o |
| Winstler, c. Elton | Derby | 15 | 1738 | h. ry. ls. o. | 77 | 55 | o |
| Wortley | York | 1677 | 1733 | m. ry. d. o. | 10 | 7 | o |
| Kirkheaton | York | 1706 | 34 | o. d. ry. m. | 18 | 11 | o |
| Pleasley | Derby | 1644 | 1738 | d. g. ls. r. | 95 | 65 | o |
| Todwick | York | 1673 | 1733 | l. g. w. | 26 | 17 | o |
| Buxton | Derby | 1758 | 1754 | m. d. o. ls. | 50 | 37 | o |
| Afton | York | | 76 | h. o. g. | 23 | 17 | o |

| | | PERIOD First. | | | | PERIOD Second. | | | |
|-----------------|------------|---------------|-----------|-----|----|----------------|------|-----|-------|
| | | 34 | o. g. le. | 6 | 5 | 1660 | 1732 | 20 | 16½ |
| Wentworth | York | 1561 | 1627 | 24 | 19 | 1709 | 1733 | 9½ | 77 |
| Darfield | York | 1582 | 1651 | 26 | 21 | 1653 | 1733 | 11 | 9 |
| Hatfield | York | 1558 | 1605 | 24½ | 21 | 1686 | 1728 | 24 | f. f. |
| Hanfworth | York | 1620 | 1647 | 53 | 43 | 1648 | 1737 | 90 | 65 |
| South Kirby | York | 1571 | 1644 | 31 | 24 | 1641 | 1734 | 25 | 22 |
| Carcolston | Nottingham | 1600 | 1649 | 39 | 31 | 1650 | 1737 | 38 | 35 |
| Hoyton Pannell | York | 1630 | 1645 | 39 | 33 | 1646 | 1738 | 17 | 15 |
| Yealinton | Devon | 1612 | 1642 | 38 | 31 | 1664 | 1739 | 14 | 15 |
| Kingsbridge | Devon | 1567 | 1638 | 94½ | 40 | 1639 | 58 | 13 | 11 |
| Country Parish | Hampshire | 1560 | 1640 | 12 | 9 | 1641 | 1733 | 13½ | 12 |
| Conisburrow | York | | | | | 59 | 1742 | 37 | 28 |
| Wing | Rutland | | | 29 | 25 | 1646 | 1737 | 28 | 31 |
| Tickhill | York | 1567 | 1645 | 71 | 61 | 1656 | 1710 | 11 | 9 |
| Bolsover | Derby | 1615 | 1646 | 55 | 49 | 1635 | 1733 | 66 | 57 |
| Brodsworth | York | 1539 | 1634 | 33 | 26 | 1690 | 1737 | 15 | 13 |
| Adwick-on Dearn | York | 1570 | 1638 | 37 | 30 | 1649 | 1737 | 6 | 5 |
| Harthill | York | 1546 | 1648 | 80 | 75 | 1641 | 1734 | 67 | 60 |
| Sprobturrow | York | 1558 | 1640 | 95 | 81 | 1645 | 1733 | 12½ | 11 |
| Laughton | York | 1583 | 1644 | 21 | 15 | 1644 | 1733 | 62 | 55 |
| Wickersley | York | 1606 | 43 | 46 | 37 | 1641 | 1737 | 13 | 12 |
| Brotherton | York | | 57 | 96 | 85 | 1663 | 1738 | 71 | 71 |
| Matterley | Nottingham | 1538 | 1736 | 67 | 56 | 1646 | 1735 | 13 | 15 |
| Hatherlage | Derby | | 24 | 42 | 32 | | | | m |
| Ranfield | York | 158 | 158 | 10 | 9 | 1653 | 1733 | 35 | 28 |
| Hooton Roberts | York | 1623 | 47 | | | | | | o |

as 7 to 6.

as 10 to 8.

| | PERIOD First. | | | PERIOD Second. | | |
|------------|---------------|--------------------|---------|----------------|------|------------|
| | 1597 | 1646 m. oy. | 11 to 9 | 1665 | 1736 | 13 to 11½ |
| York | 1623 | 1743 l. ls. d. wy. | 38 | 1669 | 1738 | 65 f. |
| Derby | 1628 | 45 d. | 19 | 1716 | 1738 | 65 o |
| Derby | 1562 | 1640 | 14 | 1640 | 1733 | 15 o |
| Thanet | 1558 | 1644 | 24½ | 1601 | 1733 | 20 21½ |
| Kent | 1558 | 1636 | 10 | 1638 | 1736 | 58 m. |
| Nottingham | 1621 | 50 | 91 | 93 | 75 | 1737 16 f. |
| Derby Peak | 1600 | 43 | 20 | 30 | 1653 | 1733 31 30 |
| York | | | | | | |

Parishes 83.
as 227. 238. Parishes 80. 333. 263.
Thus the double Periods of some of the last Parishes compared, shew the Necessity and Benefit of draining of stagnant Water, and clearing Wood from near Villages and Dwellings.

The Second PERIOD continued.

| | | | | | | |
|--------------------|-------------|------|------|---------------|----|----|
| Cumberworth | York | 1653 | 1736 | h. d. o. | 31 | 19 |
| Balbour | Derby | 1682 | 1734 | d. ls. | 73 | 51 |
| Tinsley Chapple | York | 1711 | 37 | d. g. o. | 5 | 5 |
| Acklam | York | | 45 | h. d. o. | 41 | 27 |
| Rinmore | Devon | | 59 | lc. rf. d. f. | 17 | 13 |
| Tidswell | Derby | | 15 | ls. o. d. l. | 89 | 63 |
| Newbottle | Northampton | 1658 | 1737 | d. o. le. | 52 | 35 |
| Winstler, c. Elton | Derby | 15 | 1738 | h. ry. ls. o. | 77 | 55 |
| Wortley | York | 1677 | 1733 | m. ry. d. o. | 10 | 7 |
| Kirkheaton | York | 1706 | 34 | o. d. ry. m. | 18 | 11 |
| Pleasley | Derby | 1644 | 1738 | d. g. ls. r. | 95 | 65 |
| Todwick | York | 1673 | 1735 | l. g. w. | 26 | 17 |
| Buxton | Derby | 1758 | 1754 | m. d. o. ls. | 50 | 37 |
| Aston | York | | 76 | h. o. g. | 23 | 17 |

The Second Period continued.

| Aynho | Oxford | 84 | 1737 | le. d. o. | 48 to 35 | o |
|-----------------------|--------------|------|------|---------------|----------|----|
| Langwith Bassett | Northampton | 1685 | 1737 | d o. le. | 19 | o |
| Pannall | York | | 74 | m. ry. o. | 52 | o |
| Stoney Middleton | Derby | 1715 | 33 | ls. m. ry. o. | 29 | o |
| Whilton | York | 1654 | 1736 | d o. g. r. | 21 | f. |
| Steinton | York | 1556 | 1737 | d. ls. | 3 | o |
| Ashover | Derby | 1700 | 33 | d o. m. r. | 63 | o |
| Almondbury | York | 1726 | 34 | m. d. o. h. | 25 | o |
| Sutton, c. Duckminton | Derby | | 53 | h. d. o. | 13 | o |
| Wharram Peirce | York Woulds | | 91 | m. d. o. | 3 | o |
| Eadale Chapple | Peak | 1678 | 1736 | ry. m. ls. o. | 19 | o |
| Firbeck | York | 1721 | 45 | l. wy. d. ls. | 12 | o |
| Orlton | Nottingham | 1702 | 36 | h. d. v. g. | 9 | o |
| Sandal | York | 1698 | 1736 | l. f. e. | 4 | o |
| Langtons | Leicester | 1661 | 1736 | cy. wt. | 4 | f. |
| Couton Fells | Lancaster | 1660 | 1738 | } m. ry. | 97 | o |
| Owick | | 1695 | 1737 | | 85 | o |
| Kirby | Ditto | 1640 | 1739 | | 13 | f. |
| Peningham | | 1653 | 1737 | | 48 | f. |
| Rothbury | Northumberl. | 1659 | 1736 | | 4 | f. |
| Casleton | Peak | 1663 | 1733 | ls. m. d. ry. | 4 | f. |
| Weatherlake | Westmoreland | 1671 | 1736 | h. ls. m. d. | 51 | f. |
| Horninghold | Leicester | 1661 | 1720 | l. w. cy. | 17 | f. |
| Kirby thewer | Westmoreland | 67 | 1729 | l. d. f. gr. | 15 | o |
| Temple Sowrby | Ditto | 1670 | 1735 | l. d. f. gr. | 39 | f. |
| | | | | | 31 | o |
| | | | | | 50 | o |
| | | | | | 45 | o |
| | | | | | 32 | o |
| | | | | | 27 | o |

as 651052.

The Second PERIOD continued.

| Ouby | Cumberland | 1663 | 1726 | h. d. o. m. | 41 to 34 | 0 |
|------------------|------------|------|------|----------------|--------------------|----|
| S. Lyffenham | Rutland | 1682 | 1700 | d. f. | 5 | 0 |
| Rawmarsh | York | 1653 | 1733 | h. d. l. w. o. | 11 9 $\frac{1}{2}$ | 0 |
| Treeton | York | 1677 | 1733 | h. d. gr. | 30 23 | 0 |
| Althucknal | Derby | | 27 | ls. d. | 77 59 | 0 |
| Maltby | York | 1698 | 1745 | ls. d. wy. | 5 4 | f. |
| Hickleton | York | 1694 | 1736 | h. d. o. g. | 17 13 | 0 |
| Elmton | Derby | 1648 | 99 | ls. d. | 16 13 | 0 |
| Hemsworth | York | 1680 | 1737 | l. wt. c. gr. | 76 61 | 0 |
| Bonfal | Peak | 1700 | 33 | l. d. m. ls. | 42 35 | 0 |
| Heath | Derby | 85 | | d. | 66 55 | 0 |
| Whitwell | Derby | 63 | | | 42 35 | 0 |
| Long Preston | York | 1712 | 36 | ls. o. d. | 71 63 | 0 |
| Badsworth | York | 1699 | 1733 | l. f. d. | 11 9 | 0 |
| Melton on Hill | York | 1537 | 1737 | h. d. e. | 9 8 | 0 |
| Sutton by Newark | Nottingham | 1697 | 1736 | l. f. d. | 53 45 | 0 |
| Harts | Durham | 1670 | 1737 | l. wt. | 11 9 | 0 |
| Chapple le Frith | Derby | 1659 | 1742 | h. ry. oy. w. | 27 24 | 0 |
| Thornscore | York | | 56 | l. wt. cy. | 7 6 | m. |
| N. Collingham | Nottingham | | 59 | d. f. | 65 67 | 0 |
| Wales and Thorp | York | | | | 27 25 | f. |
| Cuckney | Nottingham | | 95 | l. f. e. | 15 14 | 0 |
| Taxal | Cheshire | 1686 | 1739 | h. m. fy. wt. | 92 91 | 0 |
| Wath | York | | 64 | d. gr. l. my. | 16 15 | f. |
| Glentworth | Lincoln | 140 | | d. o. | 61 60 | 0 |

near as 89 to 78.

The Second Period continued.

| | | | | | | |
|----------------|-------------|------|--------------------|----|-----|----|
| Kinalton | Nottingham | 1703 | 36 d. ls. | 20 | 20 | 0 |
| Aveton Giffard | Devon | 1660 | 1739 | 14 | 13 | 0 |
| Welham | Leicester | 1695 | 1736 l. wt. f. | 18 | 7 | f. |
| Carlington | Peak | | 12 m. d. ls. | 65 | 64 | 0 |
| Streatham | Cambridge | 1660 | 1733 fy. l. wt. | 8 | 7½ | 0 |
| Chilmerton | Peak | 57 | 1734 h. d. ls. | 71 | 68 | 0 |
| Wrangle | Lincoln | 1694 | 1734 fy. l. wt. | 21 | 20 | 0 |
| Upminster | Essex | 100 | | 13 | 12 | 0 |
| Bickleigh | Devon | 1677 | 1739 | 13 | 13 | 0 |
| Harrowdens | Northampton | 64 | 1738 | 10 | 10 | 0 |
| Wilburton | Cambridge | 1700 | 33 fy. l. | 35 | 35 | 0 |
| Egguckland | Devon | 82 | 1739 | 9 | 10 | 0 |
| Streaton | Nottingham | 1652 | 1734 l. wt. e. wy. | 39 | 43 | 0 |
| Hawksworth | Ditto | 1659 | 1734 l. wt. fy. | 35 | 36 | 0 |
| Dunnington | | | d. ls. | 14 | 15 | 0 |
| Cromwell | Nottingham | 1654 | 1736 | 40 | 47 | 0 |
| Littleport | Cambridge | 1674 | 1733 fy. my. | 19 | 19½ | 0 |
| Barmby Willows | Nottingham | 17 | 1735 d. my. | 65 | 79 | 0 |
| Leak | Lincoln | | fy. my. | 10 | 11 | 0 |

near 50 to 53.

In the preceding Table we have the Proportions between Christenings and Burials of above one hundred and sixty Country Parishes, besides many Chapels in different and distant Parts of *England*, lying in sundry Situations on various Soils; and the Inhabitants have different Busineses and Ways of Life. And the Abstracts of the several Registers of near the half of the above Parishes, are divided into two Periods, the one ending betwixt the fourth and fifth Decad of the last Century; the other commencing about that Time, is brought down to, or near the present. In these Periods we have a short View of the several Degrees of the Salubrity or Insalubrity of the different Situations, &c. during the small Number of Years for which these Registers are to be depended upon; and from them give me leave to observe in the general,

1st, Dry, open Situations meanly elevated, neither like Beacons on the Tops of lofty Mountains, nor like Reeds in the marshy Valleys, are above all others (*cæteris paribus*) the healthiest; for such Habitations have a free, pure, open Air; the rising Grounds supply them with Springs or Fountains of fine clear Water, which contains a healthy, exhilarating, elastick air, called, in medicinal Springs, a *mineral Spirit*, most conducive to Health, and all the Purposes requisite in that Element to a comfortable Life.

2^{dly}, For these Reasons, like Situations on different Soils, (the Inhabitants Manner and Business of Life being near alike, or the same)

are

are yet all healthy, tho' not in the same Extent; as here, we have some on Gret-stone, some on Free-stone, others on Lime-stone, Iron-stone, stiff Clay, &c. yet their Situation, Air, and Water, are all good, though they differ in their subsuperficial *Strata*.

3dly, The Inhabitants of dissimilar Situations, but on similar Soils, have different Degrees of Health. Thus *Winster, Buxton, Yolgave, Matlock, &c.* all lie on Lime-stone, yet the Inhabitants are much healthier than those of *Laughton*, (tho' it lies very high) *Steinton, Maltby, Firbeck, &c.* The former are either much better ventilated, or more free from ouzy moist Grounds, or have an opener and purer Air than the latter.

4thly, In the same Parishes we often observe one part to be healthy, and another the contrary, as *St. John Baptist in Thanet, Hatfield near Doncaster, Bakewell in the Peak, &c.* For one Part lies high, dry, open, and airy; another low, wet, or marshy, or bordering on Lakes, Meers, Fens, Marshes, or close by Woods.

5thly, The more solid the Soils of like Kinds are, and all other Things alike, the healthier the Situation. Thus Inhabitants on Gret-stone, are healthier than on coarse, loose, crumbling Free-stone; on hard Lime-stone, than on soft; and on Lime-stone rather than on Chalk; on Gravel is better than small loose Sand; on strong stiff Clay is more eligible than on soft; for all the looser softer Materials, afford earthy, stoney, sandy, or petrifying

Parts to their percolated or intercurrent Waters, which generate Lentors and Obstructions, and either produce Diseases in the Body, or being less friendly to it, they insensibly alter not only the State of their Juices, but even somehow slowly affect the Solids and the Canals of the Vessels themselves, by Obstructions, Concretions, Adhesions, Excrescences, &c.

6thly, We see that Places on like Soils and Solidities, but on different Situations, enjoy different Degrees of Health; for some being high, others low, (*cæteris paribus*) the Registers prove the former to be much healthier than the latter.

7thly, Towns, Parishes, or Villages, shut close up between lofty towering Mountains, tho' they stand never so dry, are not so healthy as those that are more elevated, for their Air is both heavier and moister, and the hot Summer Sun Beams are more powerfully reverberated by the naked barren rocky Mountains, or Precipices. This is the Case of *Castleton, Bon-fall, &c.* And it's well known how insupportable a Heat, tho' little more than that of the Blood, is to Animals; how it rarifies the Juices, and strains off in Sweat, or coagulates the Serum of the Blood.

8thly, Nor are Inhabitants on too high Situations the easiest; for being greatly exposed to intense Colds, Storms and Tempests, these shivel up and contract the Fibres, straiten the Blood Vessels, increase their Force against their contained Fluids, whose Parts are hereby broken against one another more powerfully, as well as against the Vessels; hereby both the Blood
and

and other animal Juices are strongly ground down; and the Secretions, and some Excretions therefrom, are enlarged, by Urine especially. Hence the remaining Juices become thicker and unfitter for an easy and healthy Circulation. The membraneous capillary Vessels shrinking at the same time in their Diameters, by the Cold, they admit larger Globules or Particles at their Basis, than can readily pass their Cylinders or Cones. Thus the Circulation becomes slower and more difficult, and disposes the Blood to inflammatory Disorders, Fevers, Rheumatisms, Arthriticks, &c.

9thly, Tho' a Situation be high, rocky, or mountainous, yet if its Surface is constantly moist and wet, from abundance of ouzing small springs, not sufficient to form Brooks, Rivulets, or Rills, but keep the Earth constantly soft and watry, the Salubrity of this Situation is hereby greatly impaired. This is the Case of *Glossop, Hayfield, Chapple le Frith, &c.* For such Situations make the Air cold, and the Wetness of the Ground moistens it; the former straitens the Pores of the excretory Ducts of the Skin; the latter loads and occludes their Orifices, and both diminish or hinder Perspiration. Such Places have also frequenter Fogs, Showers, Rains and Storms; for the Tops of the Mountains break the Clouds. All these together conspire to moisten the Air; and if it was not often fan'd by brisk clear Winds, it would differ little from that of low marshy Grounds. Hence the animal Solids are relaxed, the Secretions, Excretions, and Force
of

of the Circulation, are weakened and impaired, and way made for Rheums, Catarrhs; catarrhus, intermittent, and remittent Fevers, Coughs, Colds, Tumours of the Glands, Throat, Neck, &c. All which Disorders are increased as the Inhabitants live lower in the strait Vales between the Mountains, where the Air is thicker, grosser, and heavier.

10thly, A dry, open, elevated, gravelly Soil, we see obtains the next place after the dry, rocky, and mountainous; some such in this Table have 154 Christenings to 98 Burials; and the dry, high, Gret-stone, had 100 of the former to 63 of the latter.

11thly, Very light pure sandy Soils, tho' on dry and open Forests, we see are by no means the healthiest, either because the first Inhabitants, insensible of the different Effects of a dry or moist, light or ponderous, pure or gross Atmosphere, generally fix'd their Abodes in low, wet, springy, or moist Places, for the Convenience of Water, and to shelter them from inclement Weather: Or their Water not being well strained thorough some solid Soil, has often a Mixture of Sand, or small loose earthy Parts in it: Or lying on a flatter Level, their Air is not so briskly fann'd or purified, &c. as is most obvious from the Forest Registers, where the Christenings, even in the first Period, exceed not 109 to 95 Burials, which is scarce one 8th Increase.

12thly, A light thin Mixture of Sand and Gravel, or Hazle Soil, in an open Situation, tho' not much elevated, is good, as is evident

from the *Northamptonshire* and *Norfolk* Registers, where Burials are to Christenings, as 3 to 5. Such light Soils soon drink up the Rains: and being remote from high Mountains to break or intercept the Clouds, they have far less Rain and Wet; and the Country being mostly dry and open, has good Air.

13^{thly}, A Mixture of light Earth and Gravel, in a proper Situation, affords very healthy Abodes; such as most of the dry and open Parts of *Rutlandshire*, some Places in *Staffordshire*, &c. where the Water is good, the Air clear and pure, Rains are quickly drank up; and there are no Lakes or Standing Waters. Births, in such Places, are to Burials near 180 to 112.

14^{thly}, Thick, strong, stiff Beds of Clay, at or immediately under the Earth's Surface, without thick Underlays of porous Materials of Sand, Free-stone, Lime-stone, Chalk, or the like, to filter the Water through; and if withal there is not a brisk Descent above Ground, such are generally more unhealthy Habitations, even tho' distant from Marshes, Lakes, or Fens; as many clayey Situations in *Leicestershire*, *Warwickshire*, *Worcestershire*, *Glostershire*, &c. for the Clay bearing up the Water, tho' the Grounds are very fruitful, the Air is mostly wet, often cold, &c.

15^{thly}, Sandy, pebbly Soils, are in an intermediate Degree of Healthiness, between gravelly and sandy; such are mostly dry, if open.

16^{thly},

16thly, Low Habitations, especially on stiff Clay, rotten Earth, or near a Level with the Sea, great Rivers, Marshes, Lakes, or putrid standing Waters. These are worst of all; for their Air is always moist, gross, and loaded with Exhalations often putrid; their Water if not stagnant or ill scented, yet is either destitute, or has very little of that elastick Air, or mineral Spirit, which makes that Element so enlivening and salubrious. Such are the Fens in *Lincolnshire*, Isle of *Ely*, some Places in the *Holderness* of *Yorkshire*, Fens of *Lancashire*, Washes of *Norfolk*, Hundreds of *Essex*, &c. which have few or no Hills to send out purling Springs, nor Descents to drain their Grounds. Animals bred in such Places are coarser, their Flesh has not its true Relish, nor fine Flavour. The Burials in such Places, come near to, or equalize, or exceed their Christenings; in some Parts they are 27 to 23; for the People, as it were, float in a constant circumambient Moisture, which retards or diminishes Perspiration. The Air's Pressure on the Body is also lessened. The Water is not only drained of its fine Spirit, but is often earthy, putrid, salt, or abounds with Insects or their Eggs. All these conspire to impair and relax the Springiness of the animal Fibres; Secretions are performed imperfectly, the Vessels contain Juices ill digested or attenuated; such Bodies being often bloated, produce frequent, tedious, complicated, and dangerous intermittent, remittent, and putrid Fevers, Cachexies, Cacochemies, Jaundices, Dropsies,

Leucophlegmacias, Emphysemas, White Swellings, glandular Tumors, a pale whitish Complexion, a slow Motion, and less Strength in Proportion to their Bulk.

17thly, Habitations bordering on, or surrounded with great thick Woods, are less wholesome on any Situation, for the Air in the (otherwise healthy) Summer Months, is not only constantly loaded with the Water that perspires from the Trees and Leaves; but it is an excrementitious Moisture, whose former salubrious Parts were spent in the Irroration and Nutrition of the Trees, Plants, and their Efflorescencies, and the Remainder, as in Animals, being perspirant, floats for a time in the Air, till the grosser Parts subside on the Ground, and the finer rise higher in the Air. Such People have their best breathing time in the Night, when these Vegetables are, as it were, feeding and distending their Vessels from the Earth, laying in for the next Day's Expence, when they discharge their Repast. What incredible large Quantity such perspired Moisture amounts to, Dr. Woodward has sufficiently demonstrated from many and incontestible Experiments. The Effects of an Air loaded with such an excrementitious Water our first *American Colonies* felt to their fatal Experience; the like do our Sailors to this Day in eastern or southern woody Countries.

18thly, On the same account Villages or Towns, compassed round with Quick Hedges, Trees, &c. are not so healthy as these that are quite

quite open, or have the Grounds enclos'd with Stone or Brick Walls.

19^{thly}, The like Inconveniencies attend Towns bordering, or standing on Lakes, Marshes, or Meers, tho' the Houses stand on dry, open, and otherwise healthy Ground.

20^{thly}, Habitations lying dry, somewhat high and open, facing the N. N. E. or N. W. (*cæteris paribus*) are of all others the healthiest. The intelligent and attentive Reader, will from the Table find all these Observations plain, easy, and certain. Several curious and useful Uses or Inferences arise from them; but I shall reserve them for another Place.

TABLE SECOND.

Column 1st of each Period contains the Numbers of Years of each Register; Column 2^d Males baptized in that Period; Column 3^d Females baptized; Column 4th Total of both; Column 5th Weddings; Column 6th Males buried; Column 7th Females buried; Column 8th Totals of both; Column 9th the Increase; Column 10th, after the second Period, the Number of sickly and mortal Years in each Parish, during both Periods; then the Number buried in these Years. Lastly, the Number baptiz'd.

Note, The second Page throughout the whole Table being the second Period of each Parish (during the double Periods) and the first Page the first, therefore each Line of Figures answers one to another in both Pages.

Period First. Division First.

| | | | | | | | | |
|--------|-------|-------|-------|------|------|------|-------|------|
| 68 | 115 | 69 | 184 | 49 | 68 | 42 | 110 | 74 |
| 138 | 558 | 513 | 1071 | 220 | 275 | 236 | 511 | 560 |
| 200 | 307 | 321 | 628 | 200 | 216 | 184 | 400 | 228 |
| 46 | 193 | 161 | 354 | 141 | 163 | 126 | 289 | 65 |
| 101 | 426 | 403 | 829 | 201 | 268 | 228 | 496 | 333 |
| 81 | 400 | 394 | 794 | 181 | 251 | 230 | 481 | 313 |
| 50 | 151 | 134 | 285 | 61 | 84 | 85 | 169 | 116 |
| 45 | 246 | 242 | 488 | 95 | 138 | 154 | 292 | 196 |
| 106 | 332 | 322 | 654 | 169 | 218 | 209 | 427 | 227 |
| 69 | 305 | 258 | 563 | 114 | 165 | 153 | 318 | 245 |
| 87 | 288 | 269 | 557 | 194 | 168 | 166 | 334 | 223 |
| 49 | 147 | 147 | 294 | 90 | 107 | 90 | 197 | 97 |
| 55 | 453 | 400 | 853 | 238 | 294 | 274 | 568 | 285 |
| 73 | 473 | 359 | 832 | 166 | 232 | 220 | 452 | 380 |
| 82 | 2087 | 1946 | 4033 | 937 | 1184 | 1150 | 2334 | 1700 |
| 43 | 1430 | 1403 | 2833 | 539 | 973 | 963 | 1936 | 897 |
| 91 | 2236 | 2241 | 4477 | 881 | 1524 | 1465 | 2989 | 1388 |
| 65 | 362 | 328 | 690 | 178 | 228 | 257 | 485 | 205 |
| 87 | 288 | 269 | 557 | 149 | 168 | 166 | 334 | 223 |
| 61 | 338 | 261 | 599 | 99 | 201 | 186 | 387 | 212 |
| 30 | 425 | 392 | 817 | 168 | 287 | 258 | 545 | 272 |
| 35 | 405 | 366 | 771 | 200 | 281 | 267 | 548 | 223 |
| 25 | 192 | 166 | 358 | 126 | 109 | 112 | 221 | 137 |
| 82 | 309 | 315 | 624 | 150 | 208 | 212 | 420 | 204 |
| 45 | 395 | 375 | 770 | 234 | 255 | 289 | 544 | 226 |
| 38 | 108 | 85 | 193 | 30 | 68 | 67 | 135 | 58 |
| Totals | 12969 | 12139 | 25108 | 5810 | 8133 | 7789 | 15922 | 9087 |

Period

Period Second. Division First.

| 123 | 114 | 237 | 70 | 102 | 103 | 205 | 32 | 8 | 77 | 62 |
|-------|-------|-------|------|-------|-------|-------|------|----|-------|------|
| 2239 | 2175 | 4414 | 1484 | 1829 | 1805 | 3634 | 780 | 14 | 888 | 643 |
| 226 | 220 | 446 | 232 | 196 | 192 | 388 | 58 | 5 | 85 | 42 |
| 379 | 408 | 787 | 276 | 289 | 295 | 584 | 203 | 17 | 229 | 166 |
| 334 | 314 | 648 | 130 | 231 | 219 | 450 | 198 | | | |
| 656 | 665 | 1321 | 214 | 513 | 527 | 1040 | 281 | 15 | 257 | 189 |
| 245 | 242 | 487 | 121 | 187 | 194 | 381 | 106 | 11 | 132 | 77 |
| 392 | 357 | 749 | 114 | 285 | 258 | 543 | 206 | 21 | 276 | 254 |
| 212 | 179 | 391 | 92 | 154 | 174 | 328 | 63 | 26 | 239 | 156 |
| 257 | 254 | 511 | 154 | 225 | 184 | 409 | 102 | 9 | 106 | 67 |
| 1000 | 900 | 1900 | 427 | 774 | 665 | 1435 | 465 | 12 | 241 | 193 |
| 472 | 483 | 955 | 151 | 407 | 375 | 782 | 173 | 38 | 493 | 421 |
| 1972 | 1745 | 3717 | 685 | 1377 | 1330 | 2707 | 1010 | 32 | 1585 | 1484 |
| 1361 | 1347 | 2708 | 769 | 1104 | 1096 | 2200 | 508 | 14 | 979 | 927 |
| 2348 | 2344 | 4692 | 1251 | 2030 | 1853 | 3883 | 809 | 45 | 2507 | 2561 |
| 536 | 489 | 1025 | 177 | 389 | 415 | 804 | 221 | 11 | 252 | 183 |
| 252 | 235 | 487 | 98 | 205 | 192 | 397 | 90 | 9 | 79 | 48 |
| 417 | 387 | 804 | 119 | 336 | 328 | 664 | 140 | 24 | 309 | 232 |
| 678 | 698 | 1376 | 280 | 572 | 606 | 1178 | 198 | 7 | 287 | 112 |
| 1525 | 1397 | 2922 | 847 | 1185 | 1054 | 2239 | 683 | 21 | 747 | 696 |
| 604 | 588 | 1192 | 285 | 485 | 476 | 961 | 231 | 17 | 346 | 216 |
| 377 | 371 | 748 | 181 | 326 | 341 | 667 | 81 | 35 | 432 | 273 |
| 481 | 451 | 932 | 261 | 343 | 429 | 772 | 160 | 8 | 142 | 103 |
| 253 | 212 | 465 | 177 | 227 | 206 | 438 | 32 | 14 | 131 | 71 |
| 17339 | 16575 | 33914 | 8595 | 13767 | 13317 | 27084 | 6830 | | 10819 | 7376 |

Period First, Division Second.

| | | | | | | | | |
|--------|-------|-------|-------|------|-------|-------|-------|------|
| 74 | | | 253 | 69 | | | 172 | 81 |
| 26 | 238 | 189 | 427 | 56 | 129 | 105 | 234 | 193 |
| 48 | 144 | 119 | 263 | 48 | 91 | 81 | 172 | 91 |
| 79 | | | 1228 | 240 | | | 880 | 348 |
| 74 | | | 1700 | 253 | | | 1179 | 521 |
| 78 | 425 | 430 | 855 | 167 | 304 | 300 | 604 | 251 |
| 54 | 582 | 533 | 1115 | 235 | 424 | 435 | 859 | 256 |
| 44 | 455 | 368 | 823 | 292 | 286 | 300 | 586 | 237 |
| 92 | 368 | 333 | 701 | 150 | 277 | 270 | 547 | 154 |
| 90 | 2404 | 2240 | 4644 | 1462 | 1695 | 1594 | 3289 | 1355 |
| 50 | 298 | 270 | 568 | 163 | 190 | 198 | 388 | 180 |
| 93 | 1197 | 1096 | 2293 | 418 | 784 | 787 | 1571 | 722 |
| 80 | 1567 | 1454 | 3021 | 799 | 1226 | 1108 | 2334 | 687 |
| 56 | | | 1035 | 303 | | | 750 | 285 |
| 86 | 653 | 658 | 1311 | 365 | 515 | 546 | 1061 | 250 |
| 23 | 472 | 431 | 903 | 240 | 357 | 367 | 724 | 179 |
| 83 | 1544 | 1422 | 2966 | 730 | 1230 | 972 | 2202 | 764 |
| 40 | 455 | 415 | 870 | 108 | 298 | 302 | 600 | 270 |
| 50 | 706 | 593 | 1299 | 306 | 498 | 476 | 974 | 325 |
| 88 | 2305 | 2109 | 4414 | 1025 | 1592 | 1616 | 3208 | 1206 |
| 67 | 730 | 712 | 1442 | 313 | 564 | 516 | 1080 | 362 |
| 73 | 189 | 164 | 353 | 124 | 152 | 276 | 428 | 92 |
| 13 | 179 | 183 | 362 | 65 | 162 | 139 | 301 | 79 |
| 85 | 480 | 526 | 1006 | 240 | 346 | 386 | 732 | 274 |
| 34 | 344 | 340 | 684 | 190 | 278 | 287 | 565 | 117 |
| 67 | 1243 | 1159 | 2402 | 690 | 1001 | 930 | 1931 | 373 |
| Totals | 16978 | 15744 | 32722 | 8186 | 12399 | 11991 | 24390 | |
| | | | 4216 | 865 | | | 2981 | |
| Both | | | 36938 | 9051 | | | 27371 | 9652 |

Period

Period Second. Division Second.

| | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|----|-------|-------|
| | 216 | 70 | | | 186 | 30 | 12 | 86 | 35 |
| 214 | 437 | 76 | 204 | 208 | 412 | 25 | | | |
| 311 | 647 | 105 | 243 | 230 | 473 | 174 | 4 | 44 | 25 |
| | 1300 | 272 | | | 1007 | 293 | 26 | 551 | 405 |
| 426 | 817 | 190 | 275 | 295 | 570 | 253 | 12 | 326 | 245 |
| 574 | 1136 | 179 | 479 | 477 | 956 | 180 | 28 | 494 | 330 |
| 1160 | 2431 | 330 | 925 | 864 | 1789 | 642 | 20 | 682 | 594 |
| 1158 | 2540 | 510 | 959 | 1000 | 1959 | 581 | 20 | 875 | 735 |
| 533 | 1113 | 353 | 389 | 358 | 747 | 366 | 35 | 471 | 403 |
| 3544 | 7166 | 1792 | 2644 | 2546 | 5190 | 1976 | 33 | 2284 | 2558 |
| 734 | 1476 | 220 | 595 | 546 | 1141 | 335 | 20 | 271 | 215 |
| 1000 | 2050 | 433 | 881 | 810 | 1691 | 359 | 27 | 445 | 466 |
| 1478 | 3043 | 796 | 1258 | 1178 | 2436 | 607 | 35 | 1494 | 1107 |
| | 2802 | 676 | | | 2295 | 507 | 20 | 550 | 428 |
| 628 | 1235 | 339 | 515 | 553 | 1068 | 167 | 21 | 548 | 325 |
| 1197 | 2398 | 502 | 1178 | 1211 | 2389 | 9 | 9 | 487 | 301 |
| 2374 | 4896 | 788 | 1952 | 1834 | 3786 | 1110 | 28 | 1788 | 1410 |
| 821 | 1531 | 240 | 561 | 550 | 1111 | 420 | 10 | 242 | 223 |
| 1287 | 2661 | 394 | 1169 | 1217 | 2386 | 275 | 30 | 1069 | 759 |
| 2662 | 5541 | 812 | 2198 | 2196 | 4394 | 1147 | 28 | 1873 | 1595 |
| 1748 | 3574 | 922 | 1400 | 1343 | 2743 | 831 | 23 | 822 | 680 |
| 104 | 232 | 61 | 104 | 72 | 176 | 56 | 11 | 94 | 46 |
| 1426 | 2936 | 493 | 1134 | 1161 | 2295 | 641 | 12 | 651 | 386 |
| 523 | 1067 | 486 | 455 | 418 | 873 | 195 | 29 | 483 | 357 |
| 968 | 2031 | 384 | 855 | 830 | 1685 | 346 | 17 | 643 | 471 |
| 431 | 931 | 263 | 410 | 361 | 771 | 160 | 23 | 1112 | 783 |
| 25301 | 51889 | 10668 | 20783 | 20258 | 41041 | 12134 | | 18380 | 14882 |
| | 4418 | 1018 | | | 3488 | | | | |
| | 56307 | 11686 | | | 44529 | | | | |

Period

Period First. Division Third.

| | | | | | | | | |
|----|------|------|-------|------|------|------|-------|------|
| 48 | 252 | 234 | 486 | 167 | 223 | 292 | 425 | 61 |
| 74 | 311 | 318 | 629 | 124 | 230 | 252 | 482 | 147 |
| 16 | 214 | 177 | 391 | 91 | 167 | 169 | 336 | 55 |
| 50 | 2551 | 2406 | 4957 | 1249 | 2047 | 1972 | 4019 | 938 |
| 81 | 620 | 607 | 1227 | 284 | 466 | 435 | 901 | 326 |
| 20 | 61 | 69 | 130 | 22 | 46 | 53 | 99 | 31 |
| 70 | | | 2646 | 829 | | | 2154 | 492 |
| 50 | | | 396 | 95 | | | 310 | 86 |
| 28 | | | 553 | 173 | | | 436 | 117 |
| 79 | | | 2942 | 761 | | | 2568 | 374 |
| | 4009 | 3811 | 7820 | 1937 | 3179 | 3083 | 6262 | |
| | | | 6537 | 1858 | | | 5468 | |
| | | | 14357 | 3795 | | | 11730 | 2627 |

Period First. Division Fourth.

| | | | | | | | | |
|----|------|------|-------|------|------|------|------|------|
| 31 | 431 | 337 | 768 | 144 | 304 | 323 | 627 | 144 |
| 32 | 375 | 336 | 711 | 236 | 306 | 310 | 616 | 95 |
| 18 | 90 | 106 | 196 | 52 | 91 | 79 | 170 | 26 |
| 63 | 394 | 351 | 745 | 239 | 311 | 295 | 606 | 139 |
| 96 | 295 | 262 | 557 | 202 | 262 | 229 | 491 | 66 |
| 69 | 174 | 157 | 331 | 92 | 124 | 141 | 265 | 66 |
| 82 | 406 | 399 | 805 | 268 | 378 | 374 | 752 | 53 |
| 62 | 487 | 467 | 954 | 277 | 392 | 420 | 812 | 142 |
| 38 | 122 | 90 | 212 | 80 | 84 | 66 | 150 | 62 |
| 57 | 469 | 459 | 928 | 255 | 377 | 370 | 747 | 181 |
| 99 | 480 | 479 | 963 | 245 | 433 | 421 | 854 | 109 |
| 24 | 346 | 328 | 674 | 126 | 287 | 274 | 561 | 113 |
| 50 | 539 | 566 | 1105 | 290 | 426 | 487 | 913 | 192 |
| 25 | 43 | 59 | 102 | 24 | 37 | 58 | 95 | 7 |
| 21 | 205 | 182 | 387 | 56 | 197 | 187 | 384 | 3 |
| 93 | 633 | 608 | 1241 | 311 | 580 | 574 | 1154 | 87 |
| | 5493 | 5186 | 10679 | 2897 | 4589 | 4608 | 9197 | 1482 |

Period First. Division Fifth.

| | | | | | | | | |
|----|-------|-------|-------|-------|-------|-------|-------|-------|
| 83 | 722 | 735 | 1457 | 535 | 803 | 77 84 | 1581 | 721 |
| 44 | 114 | 94 | 208 | 52 | 159 | 149 | 303 | 56 |
| 26 | 483 | 432 | 915 | 300 | 449 | 488 | 938 | 82 |
| 87 | 1294 | 1160 | 2454 | 674 | 1276 | 23 | 2514 | 09 |
| | 2613 | 2421 | 5034 | 1561 | 2687 | 2649 | 5336 | 208 |
| | 42062 | 39301 | 81363 | 20391 | 30987 | 30120 | 61107 | |
| | | | 10753 | 2723 | | | 8445 | |
| | | | 92116 | 23114 | | | 69552 | 22848 |

Here Ends the First Period,

(27)

Period Second. Division Third.

| | | | | | | | | | | |
|---|------|-------|------|------|------|-------|------|----|------|------|
| 8 | 1220 | 2438 | 566 | 900 | 851 | 1751 | 687 | 9 | 268 | 224 |
| 5 | 260 | 506 | 85 | 223 | 223 | 446 | 60 | 8 | 158 | 107 |
| 0 | 863 | 1753 | 594 | 741 | 832 | 1573 | 180 | 27 | 415 | 278 |
| 5 | 677 | 1382 | 319 | 593 | 603 | 1196 | 186 | 22 | 658 | 449 |
| 9 | 661 | 1380 | 338 | 594 | 610 | 1204 | 176 | 23 | 2069 | 1673 |
| 8 | 168 | 376 | 86 | 153 | 129 | 282 | 94 | 28 | 607 | 421 |
| 0 | 524 | 1104 | 306 | 496 | 454 | 950 | 154 | 33 | 2536 | 1376 |
| 8 | 395 | 763 | 165 | 335 | 368 | 703 | 60 | 30 | 766 | 560 |
| | | 900 | 162 | | | 651 | 249 | 20 | 259 | 138 |
| | | 2811 | 749 | | | 3159 | 848 | | | |
| | 4768 | 9702 | 2470 | 4035 | 4070 | 8105 | 1597 | | 7736 | 5226 |
| | | 3711 | 911 | | | 3810 | 240 | | | |
| | | 13413 | 3381 | | | 11915 | 1846 | | | |
| | | | | | | | 848 | | | |

Period Second. Division Fourth.

| | | | | | | | | | | |
|---|------|-------|------|------|------|--------|-----|----|------|------|
| 1 | 712 | 1436 | 369 | 713 | 808 | 1521 | 511 | 22 | 548 | 430 |
| 1 | 551 | 1122 | 209 | 461 | 489 | 950 | 172 | 3 | 33 | |
| 5 | 286 | 652 | 121 | 272 | 275 | 547 | 105 | 13 | 422 | 290 |
| 2 | 595 | 1227 | 210 | 447 | 575 | 1022 | 205 | 15 | 289 | 186 |
| 9 | 327 | 668 | 187 | 294 | 280 | 574 | 94 | 13 | 226 | 77 |
| 1 | 82 | 151 | 45 | 61 | 74 | 135 | 16 | 6 | 64 | 31 |
| 8 | 302 | 670 | 74 | 327 | 282 | 609 | 61 | 27 | 436 | 355 |
| 7 | 598 | 1295 | 381 | 572 | 555 | 1127 | 268 | 46 | 489 | 399 |
| 3 | 307 | 620 | 201 | 262 | 288 | 550 | 70 | 17 | 403 | 272 |
| 6 | 634 | 1340 | 300 | 633 | 612 | 1245 | 95 | 13 | 162 | 156 |
| 6 | 365 | 711 | 187 | 339 | 377 | 716 | 5 | 29 | 688 | 386 |
| 0 | 657 | 1347 | 397 | 791 | 782 | 1573 | 922 | 40 | 701 | 360 |
| 6 | 630 | 1306 | 212 | 563 | 595 | 1158 | 148 | 10 | 345 | 258 |
| 7 | 174 | 351 | 106 | 145 | 136 | 281 | 70 | 14 | 359 | 222 |
| 6 | 296 | 612 | 168 | 287 | 266 | 553 | 59 | 10 | 86 | 44 |
| 8 | 282 | 580 | 151 | 303 | 314 | 617 | 26 | 28 | 644 | 413 |
| 0 | 6798 | 14088 | 3318 | 6470 | 6708 | 131708 | 983 | | 6695 | 4279 |

Period Second. Division Fifth.

| | | | | | | | | | | |
|----|-------|--------|-------|-------|-------|--------|-------|----|-------|-------|
| 77 | 742 | 1519 | 354 | 657 | 578 | 1235 | 284 | 18 | 560 | 417 |
| 18 | 308 | 626 | 227 | 305 | 299 | 604 | 23 | 22 | 280 | 103 |
| 47 | 759 | 1606 | 621 | 951 | 981 | 1932 | 428 | 18 | 820 | 434 |
| 74 | 1031 | 2005 | 410 | 1123 | 1003 | 2126 | 881 | 8 | 644 | 413 |
| 16 | 2840 | 5756 | 1612 | 3036 | 2861 | 5897 | | | 2304 | 1367 |
| 67 | 56282 | 115349 | 26663 | 48091 | 47214 | 95305 | | | | |
| | | 8129 | 1929 | | | 7298 | | | | |
| | | 123478 | 28592 | | | 102603 | 21344 | | 45934 | 33030 |

Period

Period Second continued. Division Sixth.

| | | | | | | | | | | | |
|------------------------------------|-----|-----|------|-----|-----|-----|------|-----|----|------|------|
| 84 | 310 | 319 | 629 | 113 | 190 | 195 | 385 | 244 | 10 | 94 | 81 |
| 53 | 375 | 362 | 737 | 140 | 262 | 254 | 516 | 221 | 8 | 132 | 108 |
| 45 | 217 | 200 | 417 | 90 | 156 | 135 | 271 | 146 | 6 | 70 | 64 |
| 59 | 190 | 158 | 348 | 81 | 128 | 140 | 268 | 80 | 3 | 36 | 14 |
| 15 | 489 | 404 | 893 | 167 | 318 | 314 | 632 | 261 | 3 | 193 | 187 |
| 80 | 255 | 265 | 520 | 59 | 190 | 166 | 356 | 164 | 3 | 37 | 28 |
| 15 | 333 | 315 | 648 | 95 | 235 | 206 | 441 | 207 | 2 | 128 | 84 |
| 57 | 502 | 501 | 1003 | 110 | 359 | 338 | 697 | 306 | 6 | 121 | 121 |
| 29 | 939 | 887 | 1826 | 499 | 623 | 568 | 1191 | 635 | 7 | 438 | 487 |
| 95 | 523 | 433 | 956 | 183 | 331 | 326 | 657 | 299 | 16 | 255 | 231 |
| 53 | 262 | 219 | 481 | 76 | 189 | 137 | 326 | 155 | 7 | 55 | 36 |
| 27 | 288 | 220 | 508 | 101 | 193 | 184 | 377 | 131 | 4 | 91 | 95 |
| 76 | 472 | 451 | 923 | 278 | 373 | 316 | 689 | 234 | 13 | 199 | 154 |
| 84 | 485 | 483 | 968 | 100 | 347 | 357 | 704 | 264 | 19 | 253 | 223 |
| 53 | 100 | 94 | 194 | 38 | 64 | 67 | 131 | 63 | 4 | 31 | 15 |
| 74 | 627 | 599 | 1226 | 145 | 441 | 426 | 867 | 359 | 5 | 126 | 90 |
| 19 | 146 | 151 | 297 | 50 | 109 | 108 | 217 | 80 | 5 | 103 | 81 |
| 83 | 660 | 587 | 1247 | 217 | 438 | 393 | 831 | 414 | 10 | 190 | 140 |
| 82 | 330 | 303 | 633 | 173 | 235 | 238 | 473 | 160 | 10 | 93 | 41 |
| 34 | 652 | 602 | 1254 | 199 | 457 | 435 | 892 | 362 | 6 | 240 | 197 |
| 9 | 698 | 648 | 1346 | 389 | 525 | 571 | 996 | 350 | 2 | 326 | 201 |
| 53 | 262 | 219 | 481 | 76 | 189 | 157 | 326 | 155 | 5 | 59 | 59 |
| 9115842017535338963325911122435290 | | | | | | | | | | 3270 | 3037 |

Period Second. Division Seventh.

| | | | | | | | | | | | |
|------------------------------------|------|------|------|------|------|------|------|-----|----|------|------|
| 29 | 61 | 61 | 122 | 28 | 47 | 47 | 94 | 28 | | | |
| 35 | 165 | 162 | 327 | 61 | 140 | 109 | 249 | 78 | 5 | 73 | 53 |
| 85 | 1673 | 1597 | 3270 | 750 | 1478 | 1431 | 2909 | 361 | 22 | 1020 | 774 |
| 76 | 508 | 462 | 970 | 287 | 439 | 414 | 853 | 117 | 8 | 158 | 107 |
| 78 | 2596 | 2530 | 5126 | 1072 | 2000 | 2161 | 4161 | 965 | 24 | 1839 | 1530 |
| 66 | 211 | 181 | 392 | 124 | 153 | 153 | 306 | 86 | 8 | 78 | 44 |
| 60 | 164 | 147 | 311 | 79 | 134 | 125 | 259 | 52 | | | |
| 67 | 266 | 237 | 503 | 118 | 220 | 239 | 459 | 44 | | | |
| 76 | 170 | 154 | 324 | 75 | 144 | 132 | 276 | 48 | 12 | 156 | 93 |
| 64 | 219 | 199 | 418 | 126 | 160 | 185 | 345 | 73 | 2 | 26 | 3 |
| 19 | 426 | 381 | 807 | 159 | 337 | 308 | 645 | 162 | 6 | 67 | 36 |
| 81 | 580 | 524 | 1104 | 307 | 496 | 454 | 950 | 154 | 5 | 43 | 38 |
| 57 | 343 | 262 | 605 | 174 | 225 | 235 | 460 | 145 | 6 | 156 | 80 |
| 24 | 391 | 383 | 774 | 220 | 299 | 297 | 596 | 178 | 3 | 57 | 34 |
| 36 | 204 | 198 | 402 | 103 | 170 | 151 | 321 | 81 | 13 | 197 | 145 |
| 42 | 89 | 83 | 172 | 55 | 71 | 63 | 134 | 38 | | | |
| 158 | 218 | 207 | 425 | 96 | 162 | 167 | 329 | 96 | 5 | 40 | 22 |
| 8284776816052383466756671133462706 | | | | | | | | | | 3910 | 2959 |

Period

(29)

Period Second. Division Eighth.

| | | | | | | | | | | | |
|------------------------------------|------|------|------|-----|------|------|------|-----|----|------|------|
| 52 | 153 | 169 | 322 | 51 | 139 | 122 | 261 | 61 | 9 | 110 | 75 |
| 58 | 419 | 347 | 766 | 173 | 323 | 296 | 619 | 147 | 14 | 247 | 181 |
| 34 | 440 | 405 | 845 | 174 | 359 | 349 | 708 | 137 | 10 | 293 | 244 |
| 85 | 352 | 317 | 669 | 109 | 273 | 286 | 559 | 110 | 10 | 163 | 95 |
| 63 | 444 | 397 | 841 | 134 | 372 | 334 | 706 | 134 | 12 | 251 | 214 |
| 25 | 334 | 377 | 711 | 156 | 322 | 315 | 637 | 74 | 6 | 219 | 179 |
| 200 | 494 | 497 | 991 | 383 | 434 | 449 | 883 | 108 | 33 | 296 | 158 |
| 40 | 275 | 262 | 537 | 93 | 239 | 216 | 455 | 82 | 12 | 212 | 192 |
| 68 | 600 | 582 | 1182 | 200 | 499 | 468 | 967 | 215 | 14 | 359 | 222 |
| 84 | 1370 | 1335 | 2705 | 501 | 1201 | 1272 | 2473 | 232 | 19 | 823 | 662 |
| 56 | 109 | 109 | 218 | 67 | 99 | 86 | 185 | 33 | | | |
| 59 | 315 | 364 | 679 | 162 | 306 | 345 | 651 | 28 | 7 | 142 | 85 |
| 71 | 936 | 809 | 1745 | 285 | 788 | 730 | 1518 | 227 | 12 | 423 | 313 |
| 100 | 709 | 675 | 1384 | 250 | 636 | 623 | 1259 | 125 | | | |
| 86 | 1076 | 969 | 2045 | 445 | 936 | 966 | 1902 | 143 | 25 | 885 | 653 |
| 95 | 782 | 769 | 1551 | 492 | 781 | 670 | 1451 | 100 | 22 | 563 | 392 |
| 64 | 783 | 803 | 1586 | 438 | 757 | 768 | 1525 | 61 | 15 | 579 | 395 |
| 9591918618777411384648295167592017 | | | | | | | | | | 5565 | 4060 |

Period Second. Division Ninth.

| | | | | | | | | | | | |
|-------------------------------|-----|-----|------|-----|-----|-----|------|-----|----|------|------|
| 57 | 335 | 378 | 713 | 124 | 338 | 349 | 687 | 26 | | | |
| 54 | 491 | 438 | 929 | 166 | 464 | 453 | 917 | 12 | 11 | 285 | 195 |
| 42 | 45 | 41 | 86 | 75 | 37 | 42 | 79 | 7 | 4 | 19 | 9 |
| 64 | 56 | 47 | 103 | 322 | 60 | 41 | 101 | 2 | | | |
| 34 | 110 | 95 | 205 | 110 | 106 | 97 | 203 | 2 | 4 | 53 | 32 |
| 80 | 726 | 678 | 1404 | 356 | 614 | 779 | 1393 | 11 | 13 | 364 | 235 |
| 140 | 313 | 297 | 610 | 210 | 292 | 313 | 605 | 5 | 10 | 141 | 57 |
| 12 | 40 | 25 | 65 | 29 | 32 | 32 | 64 | 1 | | | |
| 63 | 185 | 178 | 363 | 139 | 180 | 186 | 366 | 5 | 8 | 91 | 39 |
| 57 | 76 | 72 | 148 | 36 | 74 | 76 | 150 | 2 | 9 | 49 | 27 |
| 76 | 180 | 171 | 351 | 115 | 181 | 185 | 366 | 51 | 6 | 95 | 36 |
| 83 | 194 | 205 | 399 | 92 | 195 | 243 | 438 | 65 | 17 | 186 | 101 |
| 17 | 36 | 29 | 65 | 44 | 42 | 37 | 79 | 71 | 5 | 44 | 18 |
| 83 | 220 | 187 | 407 | 174 | 234 | 238 | 472 | 89 | 4 | 61 | 34 |
| 87 | 466 | 457 | 923 | 343 | 530 | 498 | 1028 | 501 | 18 | 424 | 244 |
| 13473329867712335337935696948 | | | | | | | | | | 1812 | 1027 |

Period

Period Second. Division Tenth. Containing some
irregular Abstracts.

| | | | | | | | | | | |
|----|-----|-----|-------|-----|--|-------|------|----|------|------|
| 91 | | | 194 | | | 132 | 62 | 6 | 54 | 42 |
| 59 | 243 | 239 | 482 | | | 380 | 102 | 4 | 51 | 44 |
| 79 | | | 1320 | | | 1069 | 251 | 6 | 149 | 96 |
| 43 | | | 482 | | | 370 | 112 | 8 | 111 | 90 |
| 98 | | | 1660 | | | 1227 | 433 | 12 | 267 | 245 |
| 85 | | | 499 | | | 390 | 109 | 10 | 87 | 58 |
| 99 | | | 1148 | 200 | | 940 | 208 | 22 | 383 | 276 |
| 74 | | | 1625 | | | 1496 | 129 | 6 | 114 | 58 |
| 41 | | | 844 | | | 809 | 35 | 11 | 248 | 245 |
| 34 | | | 355 | 103 | | 356 | 1 | 13 | 466 | 262 |
| 60 | | | 1920 | 403 | | 1972 | 25 | 15 | 863 | 537 |
| 38 | | | 1063 | | | 1174 | 111 | | | |
| | | | 11592 | | | 10315 | 1277 | | 2793 | 1953 |

Totals of the five last Divisions of this Period.

| | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 30463 | 28672 | 59130 | 13671 | 24850 | 24446 | 49296 | 9833 | 17450 | 13036 |
| | | 11592 | | | | 10315 | 1277 | 2793 | 1953 |
| | | 70722 | | | | 59611 | 11110 | 20243 | 14989 |

Totals of all the ten Divisions of this second Period.

| | | | | | | | | | |
|-------|-------|--------|-------|-------|-------|--------|-------|-------|-------|
| 89530 | 84954 | 174484 | 40334 | 72941 | 71660 | 144601 | | | |
| | | 19721 | | | | 17613 | | | |
| | | 194205 | | | | 162214 | 32454 | 66177 | 48019 |

This second Table may be considered either more generally, or more particularly. For the former, during various Series of Years in the first Period, in these Parishes where the Sexes christened and buried are taken separately, the Males baptized are 42062, the Females are 39301, both 81363; the Married 20391, Males buried 30987, Females 30120, both 61107. But including the Totals whose Sexes are not distinguish'd, the whole baptized are 92116, the Married 21114, the Buried 69552. In so far of the second Period, as answers to the first, the Baptized are

123478, the Married 28592, the Buried 102603. But where the Sexes are taken separately, the Males baptized are 59067, the Females 56282, both 115349; the Married 26663, the Males buried 48091, the Females 47214; both 95305.

In the first of these Periods, Males baptiz'd are to Females above 42 to 39, $\frac{3}{10}$ or 21, to 19 $\frac{1}{2}$. In the second Period as 29 $\frac{1}{2}$ to 28 $\frac{1}{10}$. Males baptized in the first, are to the married as 21 to somewhat above 10. In the second as 29 $\frac{1}{2}$ to 13 $\frac{3}{10}$. Females baptized in the first, are to the Married about 39 to 20; in the second as 28 to 13 $\frac{3}{10}$. The Totals baptized in the first, are to the Totals married near 4 to 2; in the second above 13 $\frac{1}{2}$ to 6. The Males born in the first, are to the buried as 42 to almost 31; in the second as 59 to 48. The Increase of Males in the first, is 11075, or 11 of 42; of the second near 11 of 59. Of the 30987 buried in the first Period, 20391 were married; the few above 33 *per Cent.* died in Infancy, Childhood, and Celibacy. Of the 48091 buried in the second Period, were married 26663, remains 21428 who died unmarried, or somewhat above 26 to 21. The Females baptized in the first Period, were to the buried above 39 to 30; 9181 left for Increase. Of the buried were married 20391, the former to the latter 30 to a little above 20, or near 34 *per Cent.* to eight Virgins. In the second Period the Females baptized were to the buried near 56 to 47, 9068 survived. The Buried are to the Married

1891st
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6. 10 20
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L en
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10 20 4
1/2
84954

Married near 47 to $26\frac{1}{2}$; such as died in Celibacy, were to the Married near $20\frac{1}{2}$ to $26\frac{6}{10}$. In the first Period each Wedding, one with another, produces almost four Children; in the second $4\frac{1}{2}$, or thirteen Children to three Couples. That most of the Superplus baptized were Exports, it is most probable, for had they continued in their respective Parishes, very likely they had died and been buried like the rest. The Difference between Male and Female Exports, gives the Number of Unmarried that go into the Army and Navy.

If we compare the Abstracts of every single Parish in this Table, with the Observations on the first Table, we shall find their Degrees of Healthiness and Fruitfulness, exactly agree with the Situations and Soils there mentioned. But to repeat and apply this here, would be both tedious and impertinent, only in one Instance or two. The second Parish scarce buries one half of the Baptized, and each Wedding produces almost five Children; very few of the Baptized die in Infancy or Celibacy, and near a half of the Product are Exports. The third Parish has above six Children for each Wedding, tho' the Encrease is little above one third, and more Women are married than buried, because they are exported after Marriage. This also shews us that many more Males are married than Females. Here are also more Females baptized than Males. The same it is in the 17th, 24th, 41^a, 49th, 50th, 58th, 62^d, 74th, and 78th Abstracts: So that tho'

tho' it always hold good upon the whole, that the Number of Males considerably exceeds that of Females; yet it may be observed, that in several Registers, sometimes one Sex takes a run, and much exceeds the other, for a Series of Years together, till that, in its turn, starts, and not only makes up its former Deficiency, but exceeds the other: And if an Abstract of a Register is taken at a time when one Sex has had the Preference for a Series of Years, *ex. gr.* the Females, the Males, in their turn, will surpass them more. We see in other Abstracts the Females exceed the Males surprizingly, as in N^o 1, 10, 13, 20, 28, 29, 34, 45, 63, 71, &c. But, after all, some Places and Situations produce far more Males than others; for we shall see, in its proper place, that the Number of Males conceived in *Utero*, far exceeds the Number baptized on two accounts. First, in the healthiest Soils most Males are generated. Secondly, in these Places Miscarriages are rare, for Abortions fall far heavier on Males than Females. If Weddings in a Parish are found quite too many for the Births, the Place is either a *Surrogacy* *, a *Donative*, an *Exempt* from the Bishop's Jurisdiction, or grants many Licences. If, on the contrary, the Births prove too numerous for the Marriages, such Places lie convenient or adjacent to one of the last mentioned, and many of the Parishioners are married there. But to remedy both these Inconveniencies, let Abstracts of a large Number of contiguous and

D

con-

* *Surrogacy*, or where a Surrogate is the Incumbent.

continuous Parishes be taken, so will you have the true Product of the Marriage-Bed, except there happen to be some whose Children are not baptized at the established Church.

Having thus taken a general View of the State of Health in both Periods, let us now consider them more particularly. But to avoid Tedioufness in comparing each Parish with another, the Periods are put into several Divisions; yet the curious Reader may observe the State of Health in the several Parishes differs considerably in each Division. In the first Division of the first Period, were baptized, Males 12969, Females 12139, both 25108; married 5810, buried Males 8133, Females 7789; both 15922. The Baptized are to the Married near 251 to 116, or 47 *per Cent.* of the Baptized are married; and each Wedding, one with another, produces $4\frac{1}{2}$ Children. The Baptisms are to the Burials as $25\frac{1}{16}$ to $15\frac{9}{16}$, or 100 to almost $63\frac{1}{2}$. But the Married are to the Buried, as $11\frac{1}{2}$ to 25, or 27 *per Cent.* or hundred; the Married of the Dead to the Unmarried, as 73 to 27: But the Baptized being to the Buried as 100 to $63\frac{1}{2}$; and the Buried to the Married as 159 to 116; and the Married buried to the Unmarried, as 73 to 27; then only 27 *per Cent.* died in Infancy, Childhood, and Celibacy, except what may be allowed for second and third Marriages: For tho' the same Person's Marriages may be register'd several times, yet they are but once baptized or buried. For the same Reason, Bastards, Twins, and *Tergemini*

gemini should be substracted from the Number of Births allowed to each Wedding: But what Proportion each of these bears to single Births in Wedlock, shall be considered after. Again, to find out how many Births fall to each prolifick Marriage, substract from the Weddings the Number or Proportion of barren, impotent, or improlifick Pairs from the prolifick, which will greatly add to the Number of Children begotten in fruitful Wedlock; for tho' some Couples have not above one or two, or others have only a few real or pretended Slips, yet some have twenty or above; and this is often the Lot of the poorer sort to have the greatest Offspring, as we shall see afterward. Males are to Females about 31 to 28; the Baptized are to the Married about 16 to 7; Females baptized are to the Married as $61\frac{1}{2}$ to 29; Males baptized are to the buried as 65 to above 40; $20\frac{1}{2}$ *per Cent.* survive for Increase. The few that die in Infancy and Celibacy, in several of these Parishes, is at once a Proof of their Healthiness, and Paucity of Dissenters in that time. The Females baptized were to the buried, as 60 to $35\frac{2}{3}$; above $\frac{2}{3}$ were for Increase.

In the first Division of the second Period, were baptized Males 17339, Females 16575, both 33914; married 8595. Buried Males 13767, Females 13317, both 27084. And in Division 6th of the same Period, were baptized Males 9115, Females 8420, both 17535; married 3389; buried Males 6332, Females 5911, both 12243. These two Divisions an-

swering one another in Situations and Healthiness, are placed together. In the former Males born are to Females about 33 to 32, in the latter $13\frac{1}{7}$ to 12. In the former Males born are to the married a little more than 16 to 8; in the latter 9 to 4. In that Females baptized are to the married as 19 to 10, in this as 9 to 4. In that the Totals baptized are to the Totals married near 34 to above 17; in this above $17\frac{1}{2}$ to $6\frac{1}{2}$. In that Males born are to the buried as 34 to 27, in this as 45 to 31; in one 3572, or between a fourth and fifth Part remain for Increase; in the other 2783, or near $\frac{1}{4}$. Of the 13767 that were buried in the former, 8595 were married; thus the married dead were to the unmarried near 86 to less than 52, which died in Infancy, Childhood, and Celibacy. Of the 6332 that were buried in the latter, 3389 were married, which is as 63 to $33\frac{1}{2}$. The Females baptized in the former Division, were to the buried near 83 to $66\frac{1}{2}$; in the latter as 42 to $29\frac{1}{2}$. In the former 3572 Males remained, and 3258 Females; in the latter 2783 Males, 3509 Females. The whole Remainder of both Sexes in both Divisions, is 12122, or $\frac{4}{17}$.

In the second Division of Period first, were baptized Males 16978, Females 15744, both 32722; married 8186; buried Males 12399, Females 11991, both 24390. Besides the Parishes whose Totals we have in the Abstract, but not the Sexes, they baptized 4216, married 865 Couples, buried 2981. In the

second Division of Period second, were baptized 26588 Males, and Females 25301, both 51889; married 10668, buried Males 20783, Females 20258; both 41041; besides the undistinguished Sexes, whereof were baptized 4418, married 1018, buried 3488. In the seventh Division of this Period were baptized, Males 8284, Females 7768, both 16052; married 3834, buried Males 6675, Females 6671, both 13346. In the first of these, Males baptized are to Females near 17 to 15 $\frac{7}{10}$; Males born are to the married almost 17 to 8 $\frac{1}{2}$; Females born are to the Married as 15 $\frac{7}{10}$ to 8 $\frac{1}{2}$; the Totals baptized is to the Total wed as 8 to 4; the Males born are to the buried near 32 $\frac{2}{3}$ to 24; $\frac{1}{4}$ $\frac{4}{10}$ survive for Increase and Export. Of the 12399 buried, 8186 were married; about 24 *per Cent.* die unwed. The Females baptized were to the buried almost 15 $\frac{2}{3}$ to near 12; 3753 were left for Increase; of the Females buried 3805, or near 32 *per Cent.* The Remainder of both Sexes is not $\frac{1}{4}$. In the same Division of Period second, Males baptized are to Females near 26 $\frac{4}{10}$ to 25; Males baptized are to the married near 26 $\frac{1}{2}$ to 10 $\frac{6}{10}$; Females as 25 $\frac{3}{10}$ to 10 $\frac{6}{10}$. The Total baptized is to the Total buried about 52 to 41; Males born are to the buried 26 to above 20; 6 of 26 survive for Increase. Of the buried near $\frac{1}{2}$ were married, and of the baptized $\frac{5}{11}$ $\frac{1}{2}$; Females baptized were to the buried above 25 to 20; so that little above $\frac{2}{3}$ remains for Increase. About 95 of 202 die unmarried. The Remainder of

both Sexes is much short of $\frac{1}{5}$. In the seventh Division of this Period, Males baptized are to Females as 41 to 38 $\frac{1}{2}$, Males born are to the married as 41 to 19; the married to the buried near 19 to 33; christened to the buried as 42 to 33. The whole Increase of Males is little above $\frac{1}{5}$; $\frac{1}{7}$ more Females are christened than buried. Of the buried, the Virgins were to the Married about 28 to 38; the unmarried Dead were to the Baptized near 36 *per Cent*. The Remainder of both Sexes for Increase and Export, is scarce $\frac{1}{8}$ part. There are scarce 4 $\frac{1}{2}$ Children for each Wedding, or 21 to 5. For the third Division of Period first, and third, and eighth, for the second. In the first, where the Sexes are distinct, Males are to Females as 10 to 9; in the second as 49 to 47; in the third above 95 to 91. In the first Males baptiz'd are to the married as 40 to 19; in the second as 49 to 24 $\frac{1}{2}$; in the third as 95 to 41. In the first Males baptized are to the buried as 40 to near 32, almost $\frac{1}{3}$ for Increase; in the second as 49 to 40, above $\frac{1}{8}$; in the third above 95 to 84, little above $\frac{1}{8}$ $\frac{1}{10}$. In the first Males buried are to the married about 31 to 19, or near 36 *per Cent*. die in Celibacy; in the second about 20 to 12 $\frac{1}{2}$, or 37 $\frac{1}{2}$ *per Cent*. in the third 84 $\frac{1}{2}$ to 41; here above $\frac{1}{2}$ died unmarried. In the first there are somewhat above four Children to each Wedding, in the second not four, in the third above 4 $\frac{1}{2}$. In the first Totals the christened are to the married as 78 to 38 $\frac{1}{2}$, in the second as 67 to 33 $\frac{1}{2}$. In the first the baptized are to

the buried as 78 to $62\frac{1}{2}$, in the second as 13 to $11\frac{1}{2}$. The Females baptized are to the married as 38 to above $19\frac{1}{2}$, in the second as 47 to 24, in the third as $91\frac{7}{10}$ to 41. In the first Females baptized are to the buried as 38 to $30\frac{7}{10}$, in the second as 47 to 40, in the third as 91 to 82. In the first the Increase is $\frac{1}{2}\frac{1}{4}$, in the second little above $\frac{1}{8}$, in the third it is a little above $\frac{1}{10}$. In the first Females buried are to the married about 30 to 19, in the second 40 to 24, in the third 41 to $20\frac{1}{2}$.

In Division fourth of Period first, Males baptized are to Females near 54 to 51, Males baptized are to the married almost 55 to 29, Females 52 to 29; Males wed to Males buried near 52 to 46; Increase of Males 704, of Females 578; married Males buried to unmarried near 29 to 17, Females near the same. In the same Division of Period second, Males baptized are to Females almost 73 to 68; Males baptized are to the married as $72\frac{1}{2}$ to 33, Females near 68 to 33; Males wed to Males buried near $73\frac{1}{2}$ to $64\frac{7}{10}$, Females 68 to 67; the Increase of Males $\frac{1}{5}$, of Females $\frac{1}{7}\frac{1}{2}$; the buried married Males are to the unmarried as 33 to $31\frac{1}{2}$, Females as $33\frac{1}{2}$ to 34; each Wedding had above $4\frac{1}{2}$ Children. In the ninth Division of this Period, Males baptized are to Females as $34\frac{7}{10}$ to almost 33; Males baptized are to the married as $34\frac{7}{10}$ to $23\frac{3}{10}$ Females near 33 to $23\frac{3}{10}$; Males wed to buried $23\frac{3}{10}$ to $33\frac{7}{10}$, Females $23\frac{3}{10}$ to $35\frac{1}{2}$ Increase of Males 94, Decrease of Females $\frac{1}{2}$

the buried unmarried Males are to the married as 10 to 23, Females as 12 to 23.

In the last Division of the first Period, Males are to Females as 13 to 12; Males baptized are to the married as 26 to $15\frac{1}{2}$, Females as 24 to $15\frac{3}{8}$; Males wed to buried as $15\frac{3}{8}$ to $26\frac{1}{8}$, Females $15\frac{3}{8}$ to $26\frac{1}{8}$; the Decrease of Males is 74, of Females 228; the married Males buried are to the unmarried as $15\frac{1}{8}$ to 11, Females as $15\frac{3}{8}$ to $10\frac{1}{8}$. In the fifth Division of Period second, Males baptized are to Females as 29 to $28\frac{1}{8}$, Males baptized are to the married as 29 to 16, Females as $28\frac{1}{8}$ to 16; Males baptized are to buried as 29 to $30\frac{1}{8}$, married to buried $16\frac{1}{8}$ to $30\frac{1}{8}$; the Decrease of Males is above $\frac{1}{8}$, of Females $\frac{1}{8}$. In the tenth and last Division, the baptized are to the buried above 11 to 10, the Increase somewhat more than $\frac{1}{8}$.

The Sum of all the Divisions of Period first, is, that Males baptized were to Females as 42 to $39\frac{3}{8}$; that Males baptized are to married above 42 to $20\frac{3}{8}$, Females $39\frac{3}{8}$ to almost $20\frac{3}{8}$; Males married are to buried as $20\frac{3}{8}$ to 31, Females as $20\frac{3}{8}$ to $30\frac{1}{8}$; Males baptized to buried 42 to almost 31; a $4^{\text{th}}\frac{1}{8}$ remain for Increase; Females $\frac{1}{8}\frac{1}{8}$. The unmarried buried are to the married, Males $10\frac{1}{8}$ to 20, Females $9\frac{7}{8}$ to $20\frac{3}{8}$; died in Celibacy Males 25 *per Cent.* Females scarce 25 *per Cent.* scarce four Children to each Wedding. The Total baptized is to the Total married, as 4. to 2. Of the Males born in this Period, 479 survive for Increase and Export,
above

above the whole Number that died in Infancy, Childhood, and Celibacy. In the whole second Period, Births are to Burials as 97 to 81, Increase $\frac{1}{8} \frac{1}{10}$; Males baptized are to Females above $89 \frac{1}{2}$ to near 85, or above 22 to 21; Males baptized to married above 89 to 41, Females almost 85 to $40 \frac{3}{10}$; Males wed to buried $40 \frac{3}{10}$ to near 73, Females $40 \frac{3}{10}$ to $71 \frac{1}{10}$; Males born to buried near 85 to $71 \frac{1}{10}$. The total Increase of Males is 16589, Females 13294; the buried unmarried Males are to the married as $40 \frac{3}{10}$ to $32 \frac{6}{10}$, Females as 40 to 31; the Males that die in Celibacy are to the baptized as $32 \frac{6}{10}$ to above $89 \frac{1}{2}$, the Females $31 \frac{3}{10}$ to almost 85; each three Weddings produces thirteen Children. The whole married are to the baptized as 40 to 87. If in the first Period we subtract the Surplus of Males to Females baptized, which is 2761; from the Surplus of Males baptized to buried, which is 11075, there remains 5553, which is 3828 less than the Surplus of Females baptized to the buried; then 3828 more Males have exported themselves than Females, or every $\frac{1}{11}$ Male. Again, in Period second, if we likewise subtract the Surplus of Males to Females baptized (which is 4576) from the Surplus of Males baptized to buried (which is 6589) there remains 2013, which is 11281 less than the Surplus of Females baptized to the buried; then we have 2013, or $\frac{3}{11}$ more Male Exports than Females. Thus, from the Registers, may be discovered the Excess of Male Exports to Female, in any Village, Town,

Town, or City Parishes. And this gives us pretty near the Number of unmarried Men, or such as have left their Wives behind them, and gone into the Army or Navy, during the Years of faithfully kept Registers.

The Abstracts of this Table might have been considerably enlarged, by placing them in various Lights, in classing a few Parishes from the dry, wild, mountainous, open, hard, Lime, or Grot-stone Country, where their Males baptized are to the Females as 17 to 15, their Baptisms to their Weddings near 129 to 23; so that there are $5\frac{1}{2}$ Children to each Wedding, &c. But there being so great a Disproportion between Males and Females, their married so fruitful, and so inconsiderable a Number die in Infancy and Childhood, their Tillage so small, and grazing so little Trouble, their Manufacturies, or Mining (if they have any) being sometimes upon a Decay, many of the up-grown Males export themselves; but fewer of the Females removing, they are the greatest Sufferers on the Place. There might have been likewise Places given on formerly woody Ground, but now stubb'd and clear'd; or on marshy Ground before, but now drained; by which both are become healthier. This Table would afford several other more curious than profitable Observations; but our chief Design is to see the Differences in Situations and Soils, as to the Health or Sicknes, long or short Life, Fruitfulness or Barrenness of the People, the several

ral Disproportions of Sexes born in different Places, and Periods, and Times; their Exports and Imports, Increase and Decrease, the Returns of their Epidemicks, more severe or mild Effects of Endemicks, &c. This Scheme is capable of great Improvement both as to Matter and Manner, by such as have time to collect Materials, and Judgment to discern the different Effects of several Businesſes, Manufacturies, various Diets, and Uſes of the other Non-naturals, &c. Beſides the Soil, ſuch would alſo conſider the Elevation or Depreſſion of the Inhabitants Situation; the Coverings, the Smoothneſs or Ruggedneſs, the Drineſs or Wetneſs, Openneſs or Woodineſs of the Places; their Nearneſs to, or Diſtance from Standing Waters, Moraffes, Bogs, Fens, &c. The Numerouſneſs or Fewneſs of the Inhabitants, on different meaſured or computed Areas of Ground; the Circumſtance of the People, whether poor or rich, their Food whether chiefly vegetable or animal; what is their common Drink and cheering Cups; whether they live temperately and vertuoſly, &c.

I ſhould now come to the Uſes of the laſt Column in the Table, *viz.* on ſickly and mortal Years; but that, with the Inferences from this and the firſt Table, I ſhall poſtponè to another Place.

T A B L E

TABLE THIRD.

The Abstracts of Registers of some Market-Towns. Column 1st, the Name of the Town; Column 2d, 3d of both Periods, the Years wherein the Abstracts begins and ends. Column 4th, the Number of Years. Column 5th, Males baptized. Column 6th, the Females

Period First.

Division First.

| | | | | | | | | | | |
|---------------------|------|------|----|-------|-------|-------|-------|-------|-------|-------|
| Prefcod | 1632 | 1645 | 14 | 895 | 870 | 1765 | 300 | 551 | 482 | 1033 |
| Cheltenham | 1558 | 1647 | 90 | 2083 | 1921 | 4004 | 839 | 1275 | 1332 | 2607 |
| Uppingham | 1571 | 1615 | 44 | 499 | 501 | 1000 | 145 | 332 | 347 | 679 |
| Liverpool | 1661 | 1680 | 20 | 688 | 604 | 1292 | 140 | 482 | 345 | 827 |
| Hallifax | 1539 | 1561 | 23 | | | 5611 | 1399 | | | 3837 |
| Hartlepool | 1642 | | 54 | 478 | 464 | 942 | 242 | 348 | 357 | 705 |
| Luton | 1603 | 1639 | 37 | | | 2397 | 540 | | | 1767 |
| Huthersfield | | | | | | | | | | |
| Middlewich | | | | | | | | | | |
| Peniston | | | | | | | | | | |
| Bradford | 1600 | 1639 | 40 | 3813 | 3824 | 7637 | 2208 | 2504 | 2846 | 5350 |
| Wigton | 1608 | 1650 | 43 | 1130 | 1101 | 2231 | 407 | 867 | 765 | 1632 |
| Cranbrook | 1560 | 1639 | 80 | 3726 | 3551 | 7277 | 1918 | 2928 | 2827 | 5755 |
| Barnsly | 1569 | 1623 | 55 | 1082 | 1030 | 2112 | 632 | 827 | 858 | 1685 |
| Tiverton | 1560 | 1639 | 80 | 6085 | 5903 | 11988 | 3178 | 4426 | 4919 | 9345 |
| Nantwich | 1610 | 1640 | 31 | 1471 | 1448 | 2919 | 522 | 1104 | 1268 | 2372 |
| Hull | | | | | | | | | | |
| S. Mary's Nottingh. | 1603 | 1636 | 34 | | | 2807 | 1017 | | | 2269 |
| Mansfield | 1559 | 1612 | 54 | | | 2158 | 565 | | | 1670 |
| | | | | 21950 | 21217 | 43167 | 10531 | 15644 | 16346 | 31990 |
| | | | | | | 12973 | 3521 | | | 9543 |
| | | | | | | 56140 | 14052 | | | 41533 |

Period

ales baptized. Column 7th, the Totals of
th. Column 8th, the Weddings. Column
h, Males buried. Column 10th, Females
ried. Column 11th, Totals of both. Co-
mn 12th, the Increase or Decrease. Column
th, of the second Period, the Number of
kly and mortal Years in both Periods, with
e Numbers baptized and buried. N. B. The
versed Figures shew the Decrease.

Period Second. Division First.

| | | | | | | | | | | |
|-------|-------|-------|-------|-------|-------|--------|----------------|----|-------|-------|
| 743 | 602 | 1345 | 333 | 885 | 776 | 1661 | $\frac{5}{1}$ | 10 | 880 | 1473 |
| 1936 | 1991 | 3927 | 631 | 1696 | 1934 | 3630 | $\frac{1}{13}$ | 33 | 1344 | 1805 |
| 782 | 794 | 1576 | 225 | 635 | 670 | 1305 | $\frac{1}{13}$ | 16 | 449 | 645 |
| 2773 | 2646 | 5419 | 1824 | 3194 | 2996 | 6190 | $\frac{1}{13}$ | 14 | 3891 | 4811 |
| 9475 | 9072 | 18547 | 8988 | 9050 | 9744 | 18794 | $\frac{2}{13}$ | 20 | 5082 | 6503 |
| 878 | 765 | 1643 | 364 | 701 | 748 | 1449 | $\frac{1}{17}$ | 23 | 442 | 732 |
| | | 1733 | 524 | | | 1850 | $\frac{2}{13}$ | 16 | 1088 | 1447 |
| 1489 | 1399 | 2888 | 723 | 1189 | 934 | 2123 | $\frac{1}{13}$ | 2 | 319 | 420 |
| 2015 | 1917 | 3932 | 794 | 1439 | 1464 | 2903 | $\frac{1}{13}$ | 10 | 691 | 894 |
| 2273 | 2066 | 4339 | 868 | 1741 | 1652 | 3393 | $\frac{2}{13}$ | 14 | 662 | 722 |
| 2946 | 2814 | 5760 | 3352 | 2325 | 2505 | 4830 | $\frac{1}{13}$ | 15 | 2527 | 2731 |
| | | 3444 | 886 | | | 2374 | $\frac{6}{13}$ | 10 | 385 | 743 |
| 516 | 460 | 976 | 196 | 549 | 517 | 1066 | $\frac{1}{13}$ | 21 | 1896 | 2573 |
| 2069 | 1981 | 4050 | 783 | 1748 | 1760 | 3508 | $\frac{1}{13}$ | 31 | 1223 | 1680 |
| 2169 | 2293 | 4462 | 1183 | 1678 | 1843 | 3521 | $\frac{2}{13}$ | 18 | 2445 | 3636 |
| 1372 | 1380 | 2752 | 870 | 1355 | 1548 | 2903 | $\frac{1}{13}$ | 14 | 1194 | 1869 |
| 2824 | 2898 | 5722 | 1831 | 2283 | 2363 | 4646 | $\frac{1}{13}$ | 2 | 679 | 554 |
| | | 2971 | 811 | | | 2901 | $\frac{1}{13}$ | | | |
| 2507 | 2443 | 4950 | 979 | 2415 | 2157 | 4572 | $\frac{2}{13}$ | 27 | 1726 | 2370 |
| 36767 | 35521 | 72288 | 23944 | 32883 | 33611 | 66494 | | | | |
| | | 8148 | 2221 | | | 7125 | | | | |
| | | 80436 | 26165 | | | 173619 | | | 26923 | 36608 |

Period

Period First. Division Second.

| | | | | | | | | | |
|-----------------|------|------|-----|-------|-------|-------|-------|-------|-------|
| Northwich | 1610 | 1639 | 30 | 659 | 646 | 1305 | 260 | 533 | 546 |
| Wirksworth * | | | | | | | | | |
| Pattrington | | | | | | | | | |
| Sheffield | 1561 | 1640 | 80 | 6094 | 5736 | 11830 | 3310 | 5045 | 4978 |
| Leeds Town only | | | | | | | | | |
| Banbury | 1558 | 1645 | 88 | 3077 | 2888 | 5965 | 1625 | 2643 | 2451 |
| Chesterfield | 1558 | 1643 | 86 | 3617 | 3481 | 7098 | 1744 | 2995 | 3231 |
| Melton Mowbrey | 1539 | 1645 | 107 | | | 4627 | 1010 | | |
| Wakefield | | | | | | | | | |
| Bawtry | | | | | | | | | |
| Warrington | 1614 | 1644 | 31 | 1821 | 1841 | 3662 | 814 | 1706 | 1682 |
| Malton | 1609 | 1644 | 36 | 1142 | 1179 | 2321 | 591 | 1046 | 1038 |
| Ganeborough | 1565 | 1640 | 76 | 2643 | 2575 | 5218 | 1382 | 2144 | 2256 |
| Kingscliff | 1590 | 1639 | 50 | 706 | 591 | 1297 | 306 | 486 | 464 |
| Keswick | 1566 | 1644 | 89 | | | 6922 | 1887 | | |
| Rotherham | 1592 | 1641 | 50 | 2826 | 2639 | 5464 | 1555 | 2599 | 2501 |
| Kingsbridge | 1612 | 1642 | 31 | 431 | 336 | 767 | 180 | 304 | 323 |
| Pontefract | 1586 | 1635 | 50 | | | 4335 | 1129 | | |
| Pickering | | 1646 | 77 | 1747 | 1467 | 3214 | 853 | 1631 | 1538 |
| | | | | 24763 | 23378 | 48141 | 11620 | 21132 | 21008 |
| | | | | | | 15884 | 4026 | | |
| | | | | | | 64025 | 15646 | | |

* It is a large Country Parish, with several Chapels, and a small Market.

Period Second.

Division Second.

| | | | | | | | | | | | |
|-----|-------|-------|--------|-------|-------|-------|--------|-----------------|----|-------|-------|
| 33 | 1113 | 1091 | 2204 | 518 | 919 | 949 | 1868 | $\frac{2}{11}$ | 10 | 524 | 870 |
| 34 | 2110 | 2118 | 4228 | 906 | 1831 | 1876 | 3707 | $\frac{1}{8}$ | 11 | 1334 | 1569 |
| 20 | 213 | 234 | 447 | 92 | 197 | 182 | 379 | $\frac{1}{7}$ | 7 | 133 | 169 |
| 105 | 14610 | 13892 | 28502 | 8388 | 15733 | 14663 | 30396 | $\frac{21}{11}$ | 48 | 10659 | 13676 |
| 74 | 11246 | 10893 | 22139 | 7855 | 11967 | 11692 | 23659 | $\frac{81}{11}$ | | | |
| 92 | 2946 | 2949 | 5895 | 1656 | 2791 | 2813 | 5604 | $\frac{1}{10}$ | 25 | 1597 | 2678 |
| 42 | 1883 | 1794 | 3677 | 1332 | 1641 | 1749 | 3390 | $\frac{1}{112}$ | 30 | 2423 | 3368 |
| 100 | | | 5245 | 1085 | | | 5069 | $\frac{1}{16}$ | 26 | 1327 | 2216 |
| 54 | 4739 | 4414 | 9153 | 2025 | 4240 | 3988 | 8228 | $\frac{1}{10}$ | 13 | 2257 | 2717 |
| 80 | 683 | 661 | 1344 | 375 | 716 | 770 | 1486 | $\frac{1}{11}$ | 22 | 364 | 665 |
| 30 | 2379 | 2239 | 4618 | 1670 | 2671 | 2622 | 5293 | $\frac{6}{11}$ | 17 | 2300 | 3572 |
| 96 | 2806 | 2586 | 5392 | 1223 | 2448 | 2428 | 4876 | $\frac{1}{10}$ | 35 | 1364 | 2070 |
| 38 | | | 3966 | 1073 | | | 3638 | $\frac{1}{11}$ | 26 | 2365 | 3096 |
| 96 | 1364 | 1287 | 2651 | 394 | 1130 | 1227 | 2357 | $\frac{1}{10}$ | 24 | 602 | 887 |
| 51 | | | 1849 | 725 | | | 2369 | $\frac{2}{11}$ | 31 | 1409 | 2590 |
| 91 | 4756 | 4413 | 9199 | 2387 | 4345 | 4154 | 8499 | $\frac{2}{11}$ | 27 | 2738 | 3520 |
| 86 | 724 | 712 | 1436 | 371 | 711 | 808 | 1519 | $\frac{1}{10}$ | 21 | 416 | 640 |
| 17 | | | 1931 | 691 | | | 1627 | $\frac{3}{11}$ | 19 | 1649 | 2183 |
| 95 | 1917 | 1758 | 3675 | 1077 | 2100 | 1993 | 4183 | $\frac{8}{11}$ | 14 | 3891 | 4811 |
| | 53489 | 51071 | 104560 | 30269 | 53530 | 51914 | 105444 | | | | |
| | | | 12991 | 3574 | | | 1273 | | | | |
| | | | 117551 | 33843 | | | 118147 | | | 37352 | 51297 |

Period

Period First. Division Third.

| | | | | | | | | | |
|----------------------|------|------|----|-------|-------|--------|-------|-------|-------|
| Manchester | 1573 | 1625 | 53 | | | 11568 | 3148 | | |
| Coventry Trinity | 1614 | 1644 | 31 | 1133 | 1047 | 2180 | 423 | 1049 | 1112 |
| Stockport | 1584 | 1613 | 30 | 1428 | 1236 | 2664 | 631 | 1412 | 1382 |
| Doncaster | 1557 | 1623 | 87 | 2863 | 2680 | 5543 | 1843 | 3290 | 3592 |
| Thorn | 1639 | 1648 | 10 | 269 | 291 | 569 | 103 | 301 | 350 |
| Leeds, C. Parish | 1572 | 1611 | 40 | 4678 | 4279 | 8957 | 2691 | 3939 | 3718 |
| Norrage | | | | | | | | | |
| Sleaford | | | | | | | | | |
| Ely | | | | | | | | | |
| Bakewell | | | | | | | | | |
| | | | | 10371 | 9533 | 19904 | 5091 | 9991 | 10154 |
| | | | | | | 15568 | 3148 | | |
| | | | | | | 35472 | 8239 | | |
| | | | | 57084 | 54128 | 111212 | 27242 | 46767 | 47508 |
| | | | | | | 44425 | 10695 | | |
| Totals of Period 1st | | | | | | 155637 | 37937 | | |

Period Second. Division Third.

| | | | | | | | | | | | | |
|---------------|----|--------|--------|--------|-------|--------|-------|--------|---------------|----|-------|-------|
| 745 | 11 | 2851 | 2866 | 5717 | 2621 | 2446 | 2553 | 4999 | $\frac{1}{8}$ | 19 | 4325 | 6607 |
| 745 | 34 | 4813 | 4290 | 9203 | 4853 | 6015 | 3778 | 9793 | $\frac{3}{5}$ | 26 | 4920 | 7520 |
| 745 | 30 | 1529 | 1531 | 3060 | 1269 | 2089 | 2168 | 4257 | $\frac{1}{2}$ | 27 | 2470 | 3866 |
| 745 | 26 | 1209 | 1218 | 2427 | 811 | 1273 | 1218 | 2491 | $\frac{1}{4}$ | 36 | 2637 | 5387 |
| 739 | 10 | 293 | 287 | 580 | 145 | 238 | 261 | 499 | $\frac{1}{4}$ | 7 | 394 | 527 |
| 745 | 12 | 3653 | 3518 | 7171 | 2292 | | | 6840 | $\frac{1}{2}$ | | | |
| 742 | 24 | | | 21561 | | | | 27145 | $\frac{1}{2}$ | 10 | 8634 | 13842 |
| 736 | 84 | 1813 | 1607 | 3420 | 817 | 1856 | 1791 | 3647 | $\frac{1}{2}$ | 23 | 912 | 1437 |
| 733 | 80 | | | 10775 | 3239 | | | 11392 | $\frac{3}{4}$ | 19 | 2551 | 3982 |
| 734 | 76 | 1367 | 1440 | 2807 | 1450 | 1491 | 1441 | 2932 | $\frac{1}{2}$ | 20 | 735 | 1062 |
| | | 17528 | 16857 | 34385 | 14258 | 15408 | 13210 | 28618 | | | | |
| | | | | 10775 | 3239 | | | 18232 | | | | |
| | | | | 21561 | | | | 27145 | | | | |
| | | | | 66721 | 17497 | | | 73995 | | | 16670 | 22330 |
| | | 108784 | 103449 | 211233 | 68471 | 101821 | 98735 | 190556 | | | | |
| | | | | 31914 | 9034 | | | 38060 | | | | |
| | | | | 21561 | | | | 27141 | | | | |
| of Period 2d. | | | 264708 | | | | | 255757 | | | | |

E

Several

Several of the Market-Towns in this third Table, being very small, can be reckoned little more than Country Villages; nor can they differ much from them in Healthiness, their Situations considered: Others, though seeming pretty large, yet a good Part of the Parishes lie in the Country; as *Halifax*, *Huthersfield*, *Wirksworth*. *Leeds* has eight Chapels belonging to it in the Country, which for twelve Years last past have buried *com. ann.* 253, and the Town 318. About 1-6th of *Sheffield* Parish lies in the Country; some of *Chesterfield*, and *Bradford*. *Keswick* Town is only a good Country Village, but the Parish is very extensive, and lies scattered in the narrow Straiths among these lofty Pikes; it has seven Chapels belonging to it, &c. So that most of the largest of them, being only a Mixture of Town and Country, few of the Abstracts of the Registers must be depended upon, as though they were only large Towns. Here is also another Inconvenience, that some of the Towns have the healthiest Situations of any in the Kingdom, as *Prescod*, *Wigton*, *Penistoun*, *Cheltenham*, *Uppingham*, and we have scarce any of the Sickly to answer them. In the three Divisions in the first Period, the Baptized are to the Buried, as $155\frac{1}{2}$ to 133, little above 1-7th Increase; Christenings to Weddings, $4\frac{1}{11}$ to 1; or 45 Children to 11 Marriages; the Married are to the Buried about 38 to 67. In the second Period, the Baptized are to the Buried, as 24 to $22\frac{1}{2}$, or $\frac{1}{16}$ Part for Increase; the Baptized to the Married near 24 to 15; the Married to the

the Buried about 15 to $22\frac{1}{2}$; but more particularly.

In the first Division of Period first, the Baptized are to the Buried above 56 to $41\frac{1}{2}$, scarce $1\text{-}4\text{th}$ remains; the Baptized are to the Married above 56 to 28 ; the Married are to the Buried as 28 to $41\frac{1}{2}$; Males baptized to Females about $21\frac{7}{10}$ ths to 21 ; Males born are to married above $43\frac{1}{2}$ to 21 ; Females 42 to 21 ; Males born are to the buried near 22 to $15\frac{1}{2}$; Males buried are to the married little above 15 to 10 ; 33 *per Cent.* die in Celibacy. The Females baptized are to the buried about 21 to 16 , little above $1\text{-}4\text{th}$ for Increase; the Buried to the Married $16\frac{3}{10}$ to $10\frac{1}{2}$.

In Division first of Period second, Totals baptized are to Totals buried, as 80 to $73\frac{1}{2}$; Totals baptized to married, as $80\frac{3}{10}$ to 52 ; Totals married to buried as 52 to above $73\frac{1}{2}$. Each Wedding produces little above three Children. Males baptiz'd are to Females about 36 to 35 ; Males born to married scarce 37 to 24 ; Females $35\frac{1}{2}$ to near 24 . The Total of Females baptized to the buried, about 36 to 33 , Increase $\frac{1}{11}$; Males born to buried near 37 to 33 ; the buried to the married near 33 to 24 , $\frac{1}{11}$ die unmarried; Females baptized to the buried $35\frac{1}{2}$ to about $33\frac{1}{2}$, Increase little about $\frac{1}{18}$; above $9\text{-}\frac{6}{10}$ of $33\text{-}\frac{6}{10}$ die unmarried.

In Division second, Period first, Totals baptized are to buried, as 64 to almost 56 , little above $1\text{-}8\text{th}$ Increase; the baptized to the married 64 to $31\frac{1}{5}$ th; the married to the

buried as 31 1-5th, to almost 56; of 56 $24\frac{1}{2}$ die unmarried. Males born are to Females near $24\frac{1}{2}$ to 23; Males born to married are above 24 to 11; married to buried $11\frac{1}{2}$ to 21; born to buried $24\frac{1}{2}$ to 21; Females baptized to married above 23 to $11\frac{1}{2}$; married to buried $11\frac{1}{2}$ to 21; baptized to buried $23\frac{1}{2}$ to 21. In the same Division of Period second, the Totals baptized exceed the buried by almost $\frac{3}{5}$; the baptized are to the married near 117 to $67\frac{1}{2}$; the married are to the buried above $67\frac{1}{2}$ to 118; Males baptized are to Females as $53\frac{1}{2}$ to 51, or near 18 to 17; Males married to buried as $30\frac{1}{2}$ to $53\frac{1}{2}$; baptized to buried $53\frac{1}{2}$ to above $53\frac{1}{2}$; Females baptized to married 51 to $30\frac{1}{2}$; married to buried 30 to almost 52; not two Children to each Wedding; of the Totals buried $32\frac{1}{2}$; of each 118 die unmarried.

In the last Division of Period first, Totals baptized are to the buried, as $153\frac{1}{2}$ to 133; the baptized to the married as $155\frac{1}{2}$ to almost 75; each Wedding produced above $4\frac{1}{5}$ Children; the married are to the buried almost 75 to 133, Increase near $\frac{1}{7}$; Males baptized are to Females above $100\frac{1}{10}$ to 95. Above half of the Males born are married, and of Females near 51 to 95; Males married to buried 51 *per Cent.* Females 51 to 101; Males baptized to buried, above 103 to 100; Females 95 to 101. In the last Division of Period second, Totals baptized are to the buried, as $66\frac{7}{10}$ to near 74; baptized to married $66\frac{7}{10}$ to almost 35; far short of two Children to each Wedding; married to buried 35 to 74; above half died unmarried; Males baptized to Females
not

not 17 to 16; Males baptized to wed $17\frac{1}{2}$ to $14\frac{1}{2}$; wed to buried $14\frac{1}{2}$ to $15\frac{1}{2}$; Females baptized to wed $16\frac{1}{2}$ to $14\frac{1}{2}$; wed to buried $14\frac{1}{2}$ to $13\frac{1}{2}$; Decrease $\frac{1}{10}\frac{1}{2}$.

It may be expected that the yearly Births and Burials of each Town, taken at a Medium, should have been added to the Table; but that would have answered no Purpose with Certainty, as all Towns of Trade, great Thoroughfares, &c. fluctuate often, and many of them differ much in the Periods given.

But we shall next compare the State of Generation and Mortality in *England*, with that of some Places in *Germany*, whose Bills of Mortality we have in some *Philosophical Transactions* *. There for 333655 born, 83874 were married, and 245632 were buried; the first is to the last near $16\frac{1}{2}$ to 12; to the second as 4 to 2; near half of the baptized are married, and there are four Children to each Wedding; above two-thirds of the buried were married; the born being to the buried above $16\frac{1}{2}$ to 12; then $\frac{9}{11}$ ds were for Export and Increase; but of the baptized 9148 were Bastards, which is near $\frac{3}{11}$ ds, or scarce $\frac{1}{11}$ th. Take we a general List of the King of *Prussia's* Dominions for some Years preceding 1728, it stands thus:

| Born | Married | Buried |
|--------|---------|--------|
| 617557 | 157480 | 426085 |

The first is to the second above double, and every Wedding has near four Children; the second is to the third near 31 to 42; the born are to the buried almost as 3 to 2. Tho'

E 3

* N^o 380, 381, 400, 409.

be the general State of that Prince's Dominions, yet if they are looked into more narrowly, a wide Difference may be found; for in about forty of his Borough Towns, were baptized 20994, married 4287, buried 11047. In *Geldern*, in 1717 and 1718, were born 4043, married 986, buried 2130, &c. Here the born are to the buried, as 40 to 21; the married to the buried about $19\frac{1}{2}$ to 21; the married to the christened $19\frac{1}{2}$ to 40, and above four Children for each Wedding. Were such Places for some Years exempted from the common Correctives of the Redundancy of Mankind, they would double the Number of their Inhabitants in about thirty Years. A prodigious Increase!

From several Places in *Germany*, we are more particularly informed of the late Conditions of Life of the Dead, as from *Breslaw*, *Dresden*, *Labau*, *Leipsic*, &c. where of 28645 buried, 20944 were married, which is above $\frac{3}{4}$, the other $\frac{1}{4}$ ths died in Childhood and Celibacy. But more particularly, of 24122 baptized, 12534 married, 28645 buried, here the last are 4523 more than the first; $\frac{3}{4}$ ths of the last died in Wedlock, 4645 were married Men, which is near $\frac{1}{2}$ of the whole; and only 2988 married Women, which is about $\frac{1}{10}$ ths of the buried. The Widows and Widowers were 2839, or about $\frac{1}{10}$ th. But as near 46 married Men were buried, for only 29 married Women; so Widowers buried, were to Widows about 21 to 73: The Proportion of married Men: buried, is to Widowers as 135 to 28; married Women

Women to Widows as 96 to 85; the Proportion of married Men and Widowers, is to married Women and Widows, near as 16 to 18, or 8 to 9; that of Widowers to Widows, about 28 to 85. I shall add that of 24122 baptized, 12365 were Males, and 11757 Females; then the superior Number of Males to Females, obtains as well in other Countries as here. Now, for the several States of Life in which they died, such as died in Celibacy above ten Years old, were 1503, or $\frac{1}{17}$ of the whole; the Maidens were 1260, or little above $\frac{1}{17}$. There died Males under ten Years old 7368, which is to the Males born near 7 to 12; as the Batchelors were $\frac{1}{6} \frac{1}{5}$. The baptized Girls which died under ten, were 6290, which is about 6 out of 11 $\frac{1}{2}$; as the Maidens that died above this Age, were less than $\frac{1}{14}$ of the Males, and $\frac{1}{16}$ of the Females. Desirous to see how far our Registers agree with the foreign, in some of these Particulars, I consulted the Register of a large Inland Town; whose Births being 10337, 284 whereof were Bastards, which is above $\frac{1}{17}$, tho' the Town was noted for Industry, not for Lewdness. I also extracted all the Births of three large Parishes, during a considerable Series of Years, and found the single Births to be 11415, the Twins and *Tergemini* 311, or 1 of 33. In the former Registers of some other Market Towns (for of late Still-borns are never entered in the Registers) I found the Article of Chrysome and Still-borns, to be above $\frac{1}{17}$ of the whole buried, and $\frac{1}{17}$ of the born. The like I tried in

some laborious Country Parishes, and they were as 11 of 13 to the buried, but not 1 of 17 to the born. In neither of these have we any Abortives, for they are never entered in our Registers. In the *German* Registers, of 23853 buried, 1715 were Chryfoms and Still-born, which is about $\frac{1}{14}$ of the whole; of which Chryfoms and Still-born, Males were to Females as 10 to 7; and Boys that died under 10 Years old to Girls, as 62 to 53; and Batchelors to Maids, above 12 to 11. Having thus compared and found the Agreement of foreign and home Registers, in searchable comparable Articles, we ought and may safely trust to the near Harmony in other Things, inscrutable in ours. *Leipsic* seems a little more unfavourable to Child-bed Women, than some other *German* Towns, for 1 of 52 of them die. Such as die between seventy and eighty Years of Age, are to the whole as 1 in 33; such as die between eighty and ninety, as 1 in 65. These that die in *Vienna*, from 90 to 100, as 1 in 300. In the *Prussian* Dominions, they that die between 100 and 120 Years old, are 1 of 250. This is the exactest Account I have hitherto met with, of the Health and Longivity of any Country. But tho' we find a prodigious Increase in some Places of *Germany*, let us enquire whence this arises; for *Vienna*, *Venice*, *Dresden*, *Friburg*, &c. have 88 Burials for 63 Christenings. *Ausburg*, in 31 Years, buried 30694, baptized 28428; *Breslau*, in eight Years, buried 12057, bapti-

Courts,

zed 10018. This shews that great Princes Courts, Universities, great Manufactories, Places of great Resort, and Sea-ports of much Business, &c. require a Concourse of People both to preserve their present Numbers, and for Increase. This shews the manifest Difference between a clear, open, free, thin Air, and a close, sultry, smoaky Atmosphere, not ventilated, but loaded with excrementitious and animal Effluvia; and between a moderate discreet Use of the simple Necessaries of Life with due Exercise; and an effeminate, slothful, luxurious spending our Days; and between regular and irregular Hours of Rest and Repast. I also consulted some Registers to find the Difference in the Death of Infants, and found it to stand thus, *London* buries almost 39 *per Cent.* under two Years old; *Edinburg* and *Northampton* 34 or 35, *Sheffield* 28; Country Places according to their Situation, from 20 to 28.

We want a Number of foreign monthly Registers, for a long Series of Years, to compare their fatalest or healthiest, fruitfulest or barrenest Seasons with ours; but probably we should find them much alike, allowing for the different Approach and Expiration of Seasons sooner or later than ours. Nor have I seen any of their Bills give the Number that die in each Decad of Life, like the *London* Bills.

Now for some miscellaneous Observations on the two last Tables.

yea exceed the Christenings, and yet the Place be very healthy ; but this seldom happens in Country Parishes.

5thly, The more Births exceed Burials in healthy Years, the less will the Disproportion be in sickly or mortal Seasons ; yea frequently the latter much exceeds the former.

6thly, It is Idleness or Ignorance to estimate the Healthiness of any Place, from its having a few old People ; for such Places are not habitable, where some Constitutions (especially such as are inured to them) will not weather out Life to old Age in any Soil or Situation. For the Cholerick and Melancholy, or such as have naturally too tense Fibres and Vessels, or too strong, grumous, and earthy Juices, will wear long in a low, wet, ouzy Situation, tho' they are mostly the Natives of dry, wild, mountainous Places. The Pituitous and Phlegmatick, whose Fibres and Vessels are weak and lax, their Fluids thin and inelaborated (often born in low, wet, or watery Places) do well on high, dry, wild, rocky, and mountainous Places.

7thly, The most barren, mountainous, rugged, open Places, if dry, and Peoples Habitations lie neither too high on the Mountains, nor too low in the Vallies, nor straitly shut in between lofty Mountains, are of all others the healthiest. The more populous any Place is, commonly there is the less Difference between their Births and Burials ; hence all populous and well-cultivated champain Grounds, have Christenings and Burials come nearer each other,

other, than in barren, dry, open, and mountainous Places. May not this be charg'd, first to a greater Quantity of animal, sulphureous, excrementitious, and other Vapours rising up into the Atmosphere, especially in the Spring, when the Air has generally a greater Elasticity and Pressure; as we see from the Mercury in our Barometers: Or, 2dly, to greater Occasions, and Indulgence of Intemperance and Debauchery among larger Societies and Crowds of People.

8thly, If a Place abounds, or is surrounded with quick Springs, running Waters, or a fluctuating rowling Sea; yet if the Land is dry and open, the Earth firm and hard, and soon drinks in the Rain, it may be, and is very healthy. But where much Water gathers, especially if it stagnates, it is always unwholesome. It is not some meer watery Vapours only that makes the Air unhealthy, but also a Mixture of several Exhalations collected, and arising from several Places and Things, mixed with Water, and suspended in the Air, which makes it sickly.

9thly, Our Registers prove not that such Places as have the sweetest, softest Waters, are always the healthiest, as is generally imagined; but harder Waters, strained through hard Iron-stone, Gret-stone, Sand-stone, Gravel, thick stiff Clay, &c. and have a good Descent and brisk Motion, we observe to be healthier.

10thly, By comparing our own and foreign Registers together, we find where the Burials vastly exceed the Burials, the Country is e

very healthy, or it is under an arbitrary Government, or both. The former is known by comparing the Weddings with the Burials, where we shall find the far greater Part died married, and few died in Infancy or Impuberty; sweeping Epidemicks or Endemicks rarely appear; Temperance prevails, and there is no occasion for Imports. The latter is known from the general Poverty and Thinness of the Inhabitants, the incultivated State of their Country, the great Number of their Exports; tho' more Males are born, yet the Funerals of Females far exceeds them; there is little Industry among the People, because they want Property; useless Standing Armies are kept up in time of Peace, for the Grandeur of the Tyrant, maintaining his Tyranny, and the Oppression of his People.

11thly, Where the Burials greatly exceed the Christenings, either the Situation is very unhealthy, or the Government is limited. The former is known from the Frequency and Mortality of Epidemicks and Endemicks; the Necessity of having often new Supplies, the great Mortality of Children in Youth, the Riseness of Sickliness among the Inhabitants, &c. The latter is known from the great Resort of Strangers, Labourers, Artificers, Merchants, &c. Increase of Business, Trade, and Riches: Or there is a large Body of People mix'd with the Society, of different Manners and Principles, whose Baptisms are not registered with the rest.

12thly, The Unhealthiness of a Place affects Children much, and many of them it either cuts off, or renders diseased; but such as healthily survive that State of Life, even in a bad Air, by Regularity, Temperance, and a suitable Diet, may live to a great Age in any habitable Place; hence we meet with more or less old People in all Situations and Places.

13thly, All the Registers agree, that in Cities and great Towns there is a greater Death of Infants and Children, than in Country Places in the like Situations: Hence a free, clear, open Air, is much better for Children, than close pent up Stoves. Such Parents then are surely faulty, who deny their Children a pure, well ventilated Air, when their Circumstances will allow it, and confine them to the Town or City, whose Atmosphere is loaded, and has its Spring lessened by sulphureous, and other Steams, so as it cannot duly inflate and distend the Lungs; nor compress their sanguiferous Vessels, cool the Blood, nor communicate fresh Fuel to it; for the City Air is full of perspired Matter, discharged from both dead and living animal Bodies, and other noxious Matter; Matter as well from diseased as healthy Bodies, and may insensibly convey the Seeds of several Distempers, with the unhealthy State of those Juices they exhaled from. Hence these noxious Steams sucked in by Infants, may fuse or thicken, render saline or sharp their Juices, alter or affect their Bodies, and expose them more to Disorders: As also a too frequent Indulgence of animal Food,

too great Liberty with spirituous or strong Liquors, Luxury, Intemperance, and Debauchery of Parents, will affect their Offspring. Again, Mothers or Nurseries want of Exercise to invigorate their Solids, promote Digestions, and facilitate the Discharge of their grosser Recrements, must also be injurious to Infants. Others deny their Children the Breast; nay, some nice Dames are so proud that they won't endure their poor tender Babes to lie in Bed with them; and what is still more shocking, some Mothers won't allow them a Cradle, tho' Exercise be so absolutely necessary to Health; and yet this is all that young Infants can have. Such Mothers deserve to be impaled for *Suicide*.

14^{thly}, From the whole of our Registers it is very obvious, that in the Choice of Habitations, or in judging of their Healthiness or Sickliness, a greater Regard must be had to the Surface and Situation, than to the Soil or subterraneous Contents.

15^{thly}, The Consideration of Registers will shew us how beneficial it is to inure our Bodies to cold and sundry sorts of Weather; for being accustomed to it, it becomes tolerable to us, and hardens us.

16^{thly}, The great Strength, Hardiness, Simplicity of Diet, and Longevity of the Inhabitants of dry mountainous Places, their Males marrying some Years later than in Towns or populous champain Countries; and then begetting strong healthy Children, like their long-lived hardy Progenitors, great Numbers
are

are alive at once ; so that they are sometimes longer in producing a Number equal to the present Inhabitants, than in fenny and more unhealthy Places.

17thly, Inhabitants of wet, low, marshy, woody, or otherwise unwholsome Situations, may sometimes produce a Number equal to the present People alive, in a shorter time than in the healthiest Places ; for as the Inhabitants are generally shorter lived ; they marry the sooner (tho' from the Laxity of their *Stamina*, living constantly in a moist Atmosphere) they are unfitter for it ; and many of the Offspring in such Places die in their Infancy and Childhood, as we see from 40 to 54 *per Cent*. Therefore tho' they seem to be more prolifick (which yet is false when we compare their $3\frac{1}{2}$ Children, or at most 4, with the others $4\frac{1}{2}$ 5, or $5\frac{1}{2}$) yet they must have frequenter Supplies of fresh In-comers.

18thly, The richest, fruitfullest, and profitablest Soils, are not the healthiest ; this we see throughout the whole Registers ; for most of them either lie low, or woody, moist, clayey, or wet, as the Isle of *Ely*, Marshes of *Lincolnshire* and *Norfolk*, the *Holderness* in *Yorkshire*, &c.

19thly, The closer Towns and Villages stand, the more pent-up the Houses, the lower and closer the Rooms, the narrower the Streets, the smaller the Windows, the more numerous the Inhabitants, the unhealthier the Place. This is evident from several Towns in our Tables.

20. An Atmosphere loaded with Moisture, is unhealthy, as it relaxes the Body, diminishes Perspiration, and adds to the Fluids: But when the Water, floating in the Air, happens to be Exhalations from dead or living Animals, or their Excrements; from Woods, putrified or stagnant Water, it is still worse, not as its simple Element only, but as it is excrementitious, having not only lost its nutritive Parts, but is mix'd with *Effluvia* injurious to Health. What still adds more to the Unhealthiness of such Places, is their frequent Use of indifferent Malt Liquors, which are rather too strong for idle People, or too small for the toiling and laborious; and are often only half wrought, thick, unfinned, and new; these, with the bad moist Air, are apt to turn the Vessels of the Body lax and weak, the Blood fizy, the Secretions and Excretions imperfect; hence come Agues, Intermittents, Remittents, Cachexies, Dropsies, Leucophlegmias, &c. epidemick. The Peoples Houses are ordinarily mean, and their Fire little, so that they always, as it were, float in a watery Element; and having their All at Stake, they cannot easily remove from such Habitations, yet they might easily be bettered, only by shifting their Habitations from that Place to the next open clear Eminence (if they have any such) within the Grounds, distant from Woods, Fens, Marshes, or Meers. As the lowest Situations are far from being the healthiest, so neither those too high, for Reasons given before.

21. Chalk, soft Lime-stone, &c. being dry, have been reputed healthy Situations, but our Registers say the contrary; and that not from any Exhalations, but from the Waters carrying too much of that earthy Matter into our Bodies, and there either occasions a Lensor in the Blood, or Obstructions in the smaller Vessels.

22. Registers compared with Histories of the Air and Seasons, can alone clearly prove the Effects of different Weather, Seasons, Food, Meteors, &c. on human Bodies; and whether, as these affect our Atmosphere, they do not, more or less, insensibly affect our Bodies.

23. Registers must be our best Evidence to satisfy us, whether the Earth, at certain or uncertain times, emits numerous, imperceptible, unintelligible, and insensible *Effluvia* (as some great Men have imagined) into the Atmosphere, to influence and affect us: For by consulting Registers, and medicinal and natural Observations, we find what sort of Diseases have reigned at any Season since Bills of Mortality were kept: For when a great Mortality was of short Duration, then the acute Disease has been epidemic: But mortal Distempers of long Continuance, are rather of the chronic Class; as slow Fevers, Intermittents, Remittents, or Erraticks, changing and varying into each other, or degenerating into other Diseases; as Hecticks, Consumptions, Dropsies, Cachexies, &c. as was the Case in 172; 28, 29, and 30.

24. If the Earth did send up such *Effluvia*, by Registers we may know what kinds of Earth, Minerals, Metals, or Fossils, they are that do emit them; for in these Tables are Abstracts of Registers from several sorts of Lime-stone, Free-stone, Gret-stone, Clay, Gravel, Sand, Chalk, Coal, Basf or Shale, Sulphur, Copper, Calamy, Lead and Black-lead, Iron, and several mixed Soils.

25. Registers direct us both how to make several Improvements in Grounds and Habitations, both for Health and Profit, as by draining of marshy Grounds, such as the *Ile of Ely*. For, 1. All the circumjacent Country is hereby made more healthy as well as useful: For before this great Level was drained, it was so full of Hassocks, Sedges, Reeds and Weeds, that when a Current of Water rushed in from the higher Grounds about it, it stagnated here, whilst the Mounts of Sand thrown up by the Tides at the River's Mouth, stop'd the Waters Descent from the Levels, where it remained, became muddy, putrid and unwholesome. The Earth, instead of being fertilized, was spongy, boggy, heaving, barren, and hurtful; but in a dry Year, it is now the most luxurious and fruitful Spot in the Kingdom. 2. This Fruitfulness makes it more populous round about, which is at once an Addition to the Strength, Riches, and Provision of the Kingdom. And as to its Healthiness, before it was drained, the Births were to the Burials as 61 to 70, now as 60 to 54. 3. This, with several others that are in the Table, is too dire

a Proof of the mischievous Effects on human Bodies, of marshy Ground, Standing Waters, and bad Air. 4. They run a great Risk, who having been brought up, and accustomed to a clear healthy Air, remove to fenny, wet, sickly Soils; for People born in, and inured to a bad Air, bear it much better, and find less sensible Inconvenience from it, than such as have been bred and familiarized to a good one.

5. Though Burials in such Places may exceed the Births, yet the Difference between Weddings and Burials, is far from being so wide as might be expected. Then it is evident, that great Numbers dying in Infancy, are supplied by fresh In-comers, who settle and marry there; and that the Endemics of the Place are more fatal to them than the Natives.

26. In comparing the first and second Periods, we see that forsaking the former simple, plain, virtuous Course of Life, has the same Effect both on our own and Childrens Bodies, as removing from a healthy to an unhealthy Situation, Air, and Water.

27. Not only does draining marshy Grounds contribute much to Health, but clearing low, flat, moist Grounds from Wood, high, thick, close, quick Fences; by removing Houses and Villages from low to higher Stations, and more distant from Ponds, Lakes, Meers, &c. And the lower Grounds being generally much more fruitful, will help to clear the Charges. Old Houses should also have higher Rooms, larger Lights, clearer Yards, &c. which done

in some Towns of this Table, are much healthier.

28. Since all Wet is injurious, especially standing putrified Water, and all great Woods, and thick Plantings; and all Putrefaction and Nastiness, and the excrementitious, or exhal'd Moisture of Wood and Thickets, vitiate the Air and the Water in it. This shews the Mistake of some, who not only have their Houses moted about, but planted also; and of others, who have their Ponds, Reservoirs, Collections, or Cascades of Water at the Front of the House; others their Wildernesses, Thickets, Clumps of Trees, &c. joining to their House; others their Dog-Kennels; and of pitching Tents or Camps on low, wet Ground, or too close to one another, that the Current of fresh Air cannot fan them all well; and of continuing a Camp too long in the same Place, till that Atmosphere is contaminated with the *Effluvia* of the Army, and the Excrements of Man and Horse; and the Error of most Country Farmers, who keep their Manure in a Pool of stinking Water before their Doors, and their Orchard close to the Backs of their Houses, which prevents their having pure Air from any side.

29. From the much diminished Disproportion between Births and Burials of the first and second Period, or the vast increased Mortality of Children and Youth, we see that Whoredom and Adultery (the fashionable Vices) are so far from increasing or strengthening

a People, that they only tend to promote the Business of Nurseries and Undertakers.

30. The greater Death of Males than Females in Impuberty, arises, 1. from the greater Rigidity of the Fibres and Vessels of the former; hence they are more exposed to, and in greater Danger from inflammatory Diseases. 2. Women are generally sooner marriagable than Men by four or five Years, during which time, some of the latter drop off.

31. The greater Death of married Men, is the Increase of Widows; the less Death of married Women, makes fewer Widowers; the Death of married Men being to the Total buried $15\frac{1}{2}$ per Cent. of married Women little above $10\frac{1}{2}$; the Death of Widowers to the Total buried as $2\frac{2}{7}$ per Cent. to that of Widows as $9\frac{1}{8}$ per Cent. which prodigious Odds, exclusive of all other Accidents, as Casualties in Trade or Business, Profession, or Office, amply proves the Equity and Necessity of Marriage Settlements; and also that the Settlement be neither too small for a Man's Fortune, to straiten his Widow (especially if she brought a good Fortune into his Family) nor too large for his Fortune, to injure or ruin his younger Children, that may perhaps be otherwise unprovided for, either during their Mother's Life, or after her Death; or to prove the Expulsion or Ruin of the Family in her Life, should she marry again. Seeing the Odds against a Man's Life is so great, both Married and Widower it is an unanswerable Argument (especially if he has several Children, or his Wife is a young

Woman, and he possessed of a plentiful real, or personal Estate, that he has a Power to dispose of) why he should always have his Will by him ready executed, and not leave his unsettled Estate, either to buy his Widow another Husband, to the undoing of his Children or Family, or for an extravagant elder Son, or rakish Heir at Law, to beggar the younger Children, or other sober, virtuous Relations. So tho' more Women are married than Men, yet more married Men are buried than Women; which both makes a greater Number of Widows than Widowers, and is the Reason that a greater Number of Women than Men make second and third Adventures.

32. The Reason why fewer Men are married than Women, is, because they are longer capable of Procreation; for if they have a good Constitution, and have lived temperately and chastly in their Youth, they are capable till 80 or 90; Women seldom beyond 45, but very rarely above 50. Here we may observe a remarkable Providence in the Production of a greater Number of Males than Females, seeing the Males have several greater Dangers to go through than the Females, for they run greater Hazard of Abortion between their Conception and Birth, are in more Peril at their Birth, seeing there are 10 still-born and chrysom Males, to 7 Females; they run greater Danger in Childhood, seeing 62 Boys die to 53 Girls; in greater Danger in Celibacy, for 12 Boys to 11 Girls die; in more Peril in a Marriage State, seeing above 15 married Men die

die for 10 married Women : All which Dangers are increased by living in Cities or great Towns.

33. Seeing the Dangers of Males, *in & extra uterum*, are so much greater than that of Females, then Polygamy is a most ridiculous, monstrous Custom, especially where surviving Wives are denied second Marriages.

34. Here we have another observable Instance of Providence, that one Man was only intended one Wife at a time, and one Woman one Husband ; for as at first only one of each Sex was created, and as at the general Deluge an equal Number only of both Sexes was preserved ; so here it has exerted his special Care, that during Celibacy, the Difference of each Sex dying above 10 Years old, is not near so much as when in the Womb and at Birth, that so each Man may have a Wife, and each Woman a Husband.

35. Here we see not only the Wickedness, but the Perniciousness, to the Individuals themselves, of the Gratification of the unlawful sensual Appetite ; for if even in the safe and honourable State of Matrimony, it is near 9 to 3 but the Husband dies before the Wife ; the Odds are much increased, by the wretched illegal Sensualist exposing himself to the natural or judicial Effects of his Offences.

36. If the Air or Situation of great Towns increase the Mortality of Infants and Children under 10 Years old, from 21 to 34 or 54 Cent. then their Crime must be very great who by Intemperance, Intriguing,

velling, Luxury, Excess, or other Vices, still increase the Fatality of their wretched Offspring, which is too often the Case. The greater or less Number of Bastards in a Country or Place, I find depends much on the prevailing Vices or Virtues of the Age, or State of Religion, publick Plenty or Prosperity, or Calamities: For times of Poverty, Sicknes, Famine, or Plague, are as great Enemies to Sensuality, as Trade, Plenty, Riches, Peace, general Health, Fulness, and Idleness, are to Piety and Virtue. I find that the present Number of Bastards are, to lawfully begotten Children, as 1 to between 30 and 37, double to what they were before the Restoration. If Whoredom be a Fault, Suicide is a far greater Crime: By Suicide is meant, not only the Destruction of real Beings in the Womb, Birth, or immediately after; but all nefarious Practices used by wicked Wretches to prevent Conception from their carnal Gratification.

37. Though more die now than formerly in Infancy and Childhood, yet the Numbers that die of late in Celibacy, seem far short of what they were before; for then above 57 *per Cent.* died unmarried, now little above 28; or near 30 *per Cent.* fewer die in that State: By which the first Period appears by far more fatal, seeing 30 *per Cent.* died more then in Celibacy than now, which is utterly false. But to explain this Mystery, we must consider that all Trades and Manufactories are much brisker and better now than formerly, and much more People are employed in them, and therefore
require

require more In-comers to Apprenticeship, Service, Marriage, &c. which coming in, in Celibacy, add to the Number of Married and Buried, but must be subtracted from the Baptized. To find out therefore the Number of Imports, Males or Females, separately or distinctly, compare the Proportion of the Baptized and Buried, with that of the Married in this Period, with those of the former, so should we have what we asked, allowing for the greater Mortality of Children and Youth now than formerly. In the former Period 49 *per Cent.* of the Baptized were married, but in this $64\frac{2}{3}$, which is nigh 2-3ds; therefore above 15 *per Cent.* more of the Baptized are married now than formerly; which is not true, even supposing both Periods were equally favourable to Children; but I shewed before that 57 *per Cent.* die under 20 Years old; and however unfavourable some Places are to Children, yet others are as healthy for them; yet this from the Registers, is the present Medium of them taken together. But to come to the Point; in the second Period of Table third, were baptized 211233, and 57 *per Cent.* dying under 20 Years of Age, there remains only 98071 to marry; but the Married are 136942; then 38867 more were married than survived their 20th Year after Baptism; this is 7187 more than were reckoned before. But from them that survived the 20th Year, we must subtract $5\frac{1}{2}$ *per Cent.* that died in Celibacy, which makes more; then there remains only 9291

Marriages of the registered Inmates; then the Imports and unregistered Births are in all 43963. As to the distinct Sexes baptized and married in the first Period, $47\frac{1}{2}$ per Cent. of Males baptized were wed, and $50\frac{1}{2}$ of the Females in the second Period; 63 per Cent. of the Males baptized were married, and $66\frac{1}{2}$ Females; then about 16 per Cent. more Males of the Baptized were married in the second than first Period, and as many Females; both which prove that there are 5 per Cent. of the married more Females than Males now, and 7 per Cent. more formerly. From the Baptized come we to the Buried. In the former Period near 58 per Cent. of the Buried were wed, in the present almost 72 per Cent. which is above 14 per Cent. more than before; so that here are 26678 In-comers, and 17285 unregistered Baptisms; which two added, make up again the above exact Number of 43963. In this Period 9 per Cent. more of the married were Males, and 12 Females; then 12 Males export themselves for 9 Females, or 3054. But it was proved before, that in this Period only 38 per Cent. of the buried Inmates were wed, but here almost double that Number are married; then 9 -19ths of the married Dead were *advenæ*; which is very probable, considering that Imports are pretty well grown up before they are fit either for Service or Marriage; and only 5 per Cent. of such die in Celibacy, when in their own Air; but by Change of Air, Diet, Method of Life, and sometimes severe, or covetous Masters or Mistresses, we must

must allow more, which in all will be 8 *per Cent.* Now substract the 26678 In-comers from the Buried, there remains 163878; which again substract from the Totals baptized, registered and unregistered, there remains 64640, or above 1-4th, both for Increase and Export; which agreeing pretty near with the first Period, proves this Account to be just, and to be depended on, and not Random, or Guess-work. Thus we may easily come at the Numbers of In-comers, unregistered Baptisms, Increase and Export, of any one Place in any given Series of Years.

38. The lesser Disproportion there is between Baptisms and Weddings (where there is little or no Trade) shews that People often marry earlier in Towns than in the Country, as is evident by comparing Country and Town Registers together.

39. Since so great a Resort of In-comers is necessary in Towns of Trade and Business, this is a sufficient Reason why Strangers and In-comers, conforming themselves to the Laws and laudable or indifferent Customs of the Country, should be encouraged, especially when their Interest, and all their valuable Concerns, oblige and bind them to be faithful and steady Adherents to the Constitutions of that Country into whose Community they are entered. For such In-comers are a dead Loss to the Country they are come from, and so much real Strength and Riches added to the Place they are come to; and therefore, if they behave themselves well, they challenge and merit from the In-

mates of the Place, the same kind Usage and civil Treatment as the Natives themselves, nay better than such Natives as desire or attempt the Ruin of their Country's Happiness, the undoing of their Places or Businesses, or the Misery, Loss, or Grief of their Families and Friends.

40. The great Multitudes of People requisite for Manufactories, Sea-ports, &c. proves the Necessity of In-comers, otherwise either Trade * must languish; or to keep it up, the whole or greatest Part of the rural Youth must come in, and be employed in it; the Consequence whereof is to starve the Country thro' want of sufficient Hands to carry on Agriculture. And of Strangers coming into such Places, only Friends to the Constitution should be encouraged; for if Enemies and continue in the Place, they are both so much Riches and Strength added to the Enemies of the Constitution, when it is good. If they continue not, by their Removal they may carry with them the Manufactory or Trade of the Country into their own, and so give a Blow to the Place, which in time may become too sensible and grievous to all Ranks of the Place.

41. Since the great Benefits of Trade are so conspicuous in the Registers (by comparing these Places that have it, with others that want

* The Poverty, and poor Figure the *Spaniards* make, with all their *American* Gold, Silver, and Mercury Mines; and the Opulence and Power of the *Dutch*, compared by their Trade only, prove that no Sums dug out of Mines, bear any Proportion to what may be raised by Labour, Industry, and Trade.

want it) that having or wanting it affects all Ranks, Degrees, and Professions of Men, then it is the Interest and Business of all unitedly to study the Preservation, Increase, and Security of Trade*; which is chiefly done by necessarily supporting a Government that maintains and secures it, oppressing and disabling its Enemies, encouraging Strangers to come and reside, preventing the transmigrating of it on any indiscreet Account.

42. The late Increase of Trade, Riches, and greater Resort of Strangers, to unincorporated than incorporated Towns, which rigorously and severely insist on the ancient Privileges and Rights of their Charters, granted before this Nation had much Trade, shew that Charters and Corporations are of eminent Prejudice to a Town, as they exclude Strangers, stop the Growth of Trade, and hinder the Welfare of the Place, prevent Ingenuity and Improvements, as well as occasion the Loss of great Numbers of Hands that might beneficially be employed in several others, and perhaps new Branches of the Business. One sort of these Towns flourish in People, Riches, and Trade, the others continue mean, poor, and ill-inhabited.

43.

* The great Advantage of Trade is manifest, 1. From the Rise of the Value of Land, which in 1560 was only worth 12 Years Purchase, in 1688 worth 20, now worth 30. 2. From the advanced Rental of *England*, which in 1600 was only 6000000, but in 1689 it was above 14000000; likewise an Addition of 900000 Increase of People in the Nation.

43. The Registers both of Country and Towns, but especially of the City, make it as visible and evident as the Sun at cloudless Noon-day, that there is a remarkable Increase of Buryings in Proportion to the Christenings, after the Years 1644, 45, and 46; which occasioned the Abstracts of the Registers to be divided into two Periods in the above Tables. That the late encreased Mortality might appear more certain and obvious, and that the former State of Health and Increase of the Nation might better be seen, the first Period comes down to the above Year, the second reaches from that to, or near the present Time. It might well have been expected, that the Confusion and Distraction of these Times might not only occasion a Neglect of the Registers, but might also have a considerable Influence in shortening the Lives of many, especially by untimely Deaths; or, at least, that the great Increase of the Buryings might at that Time be accounted for, from the Division which fell out in the Church. But even after the Restoration, when none of these Reasons subsisted, yet there is still a considerable Increase of the Buryings, above the Proportion they formerly bare to the Christenings. And since this Increase cannot be imputed to the Causes then subsisting, but long ago removed. Nor can it be imputed to the great Shoals of *French* Protestants who were forced out of their own Country by violent Persecution, and were sheltered here in the Reigns of King *Charles II.* and *James II.* for these settled in *London*, Sea-ports,

ports, and large Towns in the South mostly; and besides, had it been from them, it had only been temporary, for they would soon have had Issue to be entered in the Registers; or if they kept Registers of their own in *London*, they would also have Burying-Grounds of their own: Or were it from a Body of Dissenters, they must either have existed formerly, or to be found now; but we find the Registers the same where they neither are, nor can we trace any such Number of Dissenters that were there; therefore the true Reasons must be sought for elsewhere; for if this increased Mortality was from Dissenters Baptisms being unregistered, it must be seen in Tab. I. The Reasons are several and manifest. At the *Restoration* the Nation was so glad to see its ancient Government, Monarchy, restored, that together with it came in an overflowing Deluge of Profaneness, all Things were free, Piety only was put under Restraint. Twenty-eight Years after that, the happy *Revolution* was a fresh Cause of Joy to all Friends of the Protestant Religion, Liberty, and Property. Twenty-six Years after the Protestant Religion and Property had the Happiness to be more firmly and lastingly settled and secured, by the seasonable *Accession* of the present Royal Family, thereby Industry was promoted, and Trade vastly increased, to the Accumulation of Riches. Though all these were good of themselves, yet they increased Luxury, Pride, Intemperance, and Debauchery. For the Truth of these sad Effects, I might appeal from the

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Registers,

Registers, to the City Table of Casualties, and see which Periods have produced most hereditary Gouts, venereal Taints, in which are most Apoplexies, or violent Deaths, either by the Executioner, or the Wretches own butcherly Hands have been most employed, Drunkenness and Swearing most common. I might appeal further to the Death of Infants then and now, whether 30 or 47 *per Cent.* are the greater Numbers; and whether 2 of 17 that died of the Small-pox, or 4 in 21 be the most, or one of 35 that died then of Convulsions, or 9 of 35 that die now of them.

44. The different Degrees of Healthiness of various Situations, Soils, and Businesses, shew the use of Registers in Physick, since they only do inform us with the greatest Certainty of those: For Physicians observing the Situation, Manner and Business of Life of a Place, must be naturally led to enquire what Diseases are most common and mortal in it. This must necessarily challenge his Attention and Application, to enquire into the Causes and Cure of these Epidemics; and, as was hinted before, he will find great Satisfaction and Advantage by comparing Registers and Histories of the Air, Seasons, &c.

45. Not only are Registers of Service to Physicians, but also to such whose Inclination, Business, or Circumstances call him to change his Residence; for by consulting the Registers for his own Constitution, he will be enabled to judge better for himself in his Choice; for he who knows his Fibres to be naturally lax,
and

and his Vessels too much dilated or weakened by the Increase or Bulk of his Fluids; or if his Fluids, on the least Diminution of Perspiration, are apt to get the Advantage of the Resistance of his Solids; or if he is often liable to Catarrhs, or is of a corpulent, dull, cold, flegmatic, and inactive Habit, will, upon Deliberation, prefer the open, dry, mountainous, rocky Situation. But if his Perspiration is already too large, his Fibres and Vessels too strong to resist the Fluids, the Circulation too quick, and he of a lean Habit, disposing him to a Hæctic, or Atrophy, he will rightly judge the lower, moister Situations, and grosser Air fitter for him.

46. Registers not only inform us what Situations are healthiest, but which are the most productive of People, and whether of Males or Females; and whether that Healthiness or Fruitfulness alter or change with Situations or Soils, in a long Series of Years. They also inform us of the Import or Export, Increase or Decrease of Places; or whether the Disproportion between Christenings and Burials is lesser, greater, or continues at a stand. From them the Increase, Decrease, or Body of either Conformists or Nonconformists, may very readily be discovered; they easily inform us of the Increase or Decrease of the Trade of any Place from the Imports or Exports. They discover the Benefit, Indifference, or Prejudice of any new Improvements, Trades, Manufactories, &c. to Health. They give us the Difference between one Period of Time and another, and between a Country and a City Life; and

whether, and how far our present Change of Diet, Dress, Diversions, and Potables, are hurtful or beneficial to Health; and whether the same Diseases are milder or feverer now than formerly. And in great Cities they inform us which of the several Modes of Practice in Physic have been most useful in Distempers; whether an Animal or Vegetable Diet, or a Mixture of both, are most conducive to Health and long Life; and whether Animals or Vegetables produced and nourished up in the same Soil with the Inhabitants, are preferable in general to those brought from other Places; and whether the Reformation Principles, or the new Religion, tend most to promote a long Life.

To the above-mentioned Causes of the greater Healthiness, Fruitfulness, and Longevity of open, dry, wild, mountainous Places, may not improperly be added, that the Nourishment bred or fed in such Places, is healthier and better, Animals are fed more sparingly and laboriously, Vegetables are produced with less Art and more Simplicity. The Inhabitants (till of late) less inured to fermented, spirituous, or other Strong Liquors, they have commonly less Luxury or Plenty of Diet, fewer Made Dishes, high Sauce, Pickles, saline, aromatic Stimulants; their Clothing is plainer, not too delicate, soft nor warm, their Houses opener and better aired; their Exercise greater and more equal, their Minds are less hurried. They have fewer Provocations to violent Sallies of their Passions, fewer theatrical Adventures and Intrigues, less Night Revelling, or other Irregularities, &c.

T A B L E

TABLE FOURTH.

Of the sickly and mortal Years in all the Country Registers we have collected. Column first, the Year; Column second, the Number of Registers I have for that Year; Column third, the Number of sickly Parishes; Column fourth, the Number baptized in these Parishes; Column fifth, the Number buried. The same after the double black Line for the Market-Towns.

| | | | | | | | | | |
|------|----|----|-----|-----|------|----|----|------|------|
| 1541 | 1 | | 11 | 12 | 1557 | 4 | 2 | 262 | 381 |
| 3 | 1 | | 9 | 13 | 58 | 4 | 2 | 104 | 159 |
| 4 | 1 | | 7 | 15 | 59 | 5 | 3 | 102 | 149 |
| 5 | 3 | | 11 | 29 | 60 | 8 | 3 | 134 | 201 |
| 6 | 1 | | 7 | 31 | 61 | 8 | 3 | 276 | 399 |
| 7 | 1 | | 2 | 4 | 62 | 8 | 1 | 58 | 71 |
| 55 | 2 | | 15 | 18 | 63 | 8 | 1 | 73 | 76 |
| 56 | 12 | 4 | 25 | 51 | 65 | 8 | 2 | 121 | 140 |
| 57 | 16 | 7 | 62 | 181 | 66 | 8 | 1 | 65 | 104 |
| 58 | 26 | 11 | 171 | 340 | 67 | 8 | 2 | 191 | 224 |
| 59 | 24 | 12 | 145 | 252 | 68 | 8 | 1 | 38 | 65 |
| 60 | 38 | 6 | 100 | 162 | 69 | 9 | 1 | 32 | 52 |
| 61 | 41 | 1 | 19 | 32 | 70 | 9 | 5 | 249 | 323 |
| 62 | 42 | 1 | 14 | 22 | 71 | 10 | 1 | 72 | 138 |
| 63 | 45 | 2 | 31 | 59 | 72 | 10 | 1 | 36 | 55 |
| 64 | 44 | 3 | 75 | 89 | 74 | 11 | 1 | 114 | 154 |
| 65 | 45 | 3 | 73 | 80 | 75 | 12 | 3 | 313 | 542 |
| 66 | 46 | | | | 76 | 13 | 4 | 670 | 645 |
| 67 | 50 | 2 | 44 | 49 | 77 | 14 | 3 | 212 | 243 |
| 68 | 51 | 2 | 54 | 74 | 78 | 16 | 6 | 757 | 892 |
| 69 | 52 | 3 | 43 | 54 | 79 | 16 | 3 | 423 | 476 |
| 70 | 55 | 8 | 126 | 238 | 80 | 16 | 4 | 237 | 276 |
| 71 | 57 | 2 | 31 | 51 | 81 | 16 | 3 | 382 | 422 |
| 72 | 59 | 4 | 63 | 89 | 82 | 16 | 3 | 347 | 490 |
| 73 | 62 | 6 | 75 | 156 | 83 | 16 | 3 | 467 | 1062 |
| 74 | 61 | 5 | 122 | 173 | 84 | 16 | 5 | 614 | 666 |
| 75 | 60 | 4 | 52 | 98 | 85 | 17 | 5 | 494 | 519 |
| 76 | 61 | 5 | 68 | 94 | 86 | 20 | 9 | 805 | 990 |
| 77 | 60 | 2 | 42 | 65 | 87 | 19 | 12 | 1038 | 2182 |
| 78 | 60 | 2 | 32 | 36 | 88 | 19 | 7 | 635 | 1080 |
| 79 | 61 | 3 | 18 | 41 | 89 | 19 | 2 | 317 | 398 |
| 80 | 60 | 10 | 248 | 282 | 90 | 19 | 8 | 648 | 909 |
| 81 | 61 | 4 | 31 | 54 | 91 | 19 | 13 | 811 | 1337 |
| 82 | 62 | 7 | 140 | 244 | 92 | 20 | 8 | 787 | 1056 |
| 83 | 61 | 2 | 82 | 110 | 93 | 20 | 2 | 78 | 111 |
| 84 | 62 | 4 | 79 | 96 | 94 | 20 | 2 | 215 | 250 |
| 85 | 62 | 8 | 111 | 151 | 95 | 2 | 1 | 46 | 52 |

| | | | | | | | | | |
|------|----|----|-----|-----|------|----|----|------|------|
| 1586 | 60 | 9 | 173 | 258 | 1596 | 2 | 9 | 920 | 1289 |
| 87 | 62 | 16 | 255 | 372 | 97 | 20 | 14 | 1008 | 2203 |
| 88 | 62 | 13 | 205 | 253 | 98 | 20 | 7 | 473 | 1234 |
| 89 | 63 | 8 | 145 | 204 | 99 | 20 | 1 | 88 | 70 |
| 90 | 64 | 18 | 340 | 532 | 1601 | 20 | 2 | 99 | 134 |
| 91 | 64 | 18 | 311 | 546 | 2 | 29 | 6 | 585 | 961 |
| 92 | 65 | 18 | 247 | 390 | 3 | 20 | 5 | 371 | 593 |
| 93 | 66 | 10 | 244 | 210 | 4 | 20 | 4 | 248 | 593 |
| 94 | 66 | 1 | 45 | 36 | 5 | 20 | 4 | 464 | 1015 |
| 95 | 67 | 2 | 76 | 82 | 6 | | 1 | 92 | 352 |
| 96 | 67 | 8 | 177 | 200 | 8 | 21 | 3 | 396 | 347 |
| 97 | 68 | 20 | 267 | 526 | 9 | 21 | 3 | 203 | 264 |
| 98 | 70 | 10 | 106 | 192 | 10 | 24 | 2 | 374 | 413 |
| 99 | 72 | 5 | 58 | 110 | 11 | 24 | 3 | 173 | 196 |
| 1600 | 73 | 11 | 212 | 242 | 12 | 24 | 4 | 283 | 305 |
| 1 | 75 | 9 | 174 | 211 | 13 | 24 | 7 | 813 | 932 |
| 2 | 76 | 12 | 204 | 264 | 14 | 25 | 2 | 259 | 312 |
| 3 | 76 | 7 | 131 | 158 | 15 | 24 | 3 | 213 | 276 |
| 4 | 77 | 4 | 73 | 97 | 16 | 22 | 10 | 568 | 714 |
| 5 | 76 | 5 | 166 | 168 | 17 | 23 | 9 | 652 | 786 |
| 6 | 76 | 5 | 73 | 100 | 18 | 24 | 1 | 27 | 31 |
| 7 | 76 | 6 | 179 | 225 | 19 | 24 | 1 | 84 | 115 |
| 8 | 77 | 8 | 117 | 175 | 20 | 24 | 3 | 280 | 283 |
| 9 | 78 | 12 | 217 | 250 | 21 | 25 | 1 | 113 | 131 |
| 10 | 84 | 6 | 125 | 139 | 22 | 25 | 4 | 345 | 442 |
| 11 | 84 | 7 | 214 | 253 | 23 | 25 | 16 | 439 | 2254 |
| 12 | 81 | 14 | 415 | 450 | 24 | 25 | 9 | 714 | 978 |
| 13 | 82 | 22 | 450 | 593 | 25 | 25 | 9 | 563 | 666 |
| 14 | 86 | 10 | 196 | 283 | 26 | 24 | 3 | 100 | 156 |
| 15 | 87 | 11 | 176 | 250 | 27 | 24 | 4 | 432 | 393 |
| 16 | 88 | 21 | 417 | 601 | 28 | 24 | 4 | 443 | 464 |
| 17 | 82 | 12 | 222 | 317 | 29 | 24 | 6 | 576 | 657 |
| 18 | 82 | 5 | 89 | 120 | 30 | 24 | 3 | 250 | 255 |
| 19 | 82 | 11 | 150 | 181 | 31 | 24 | 1 | 32 | 66 |
| 20 | 84 | 8 | 104 | 134 | 32 | 25 | 3 | 206 | 250 |
| 21 | 85 | 5 | 99 | 108 | 33 | 25 | 4 | 483 | 508 |
| 22 | 85 | 11 | 177 | 223 | 34 | 25 | 3 | 354 | 393 |
| 23 | 84 | 30 | 601 | 836 | 35 | 25 | 7 | 925 | 1144 |
| 24 | 87 | 19 | 362 | 511 | 36 | 25 | 7 | 739 | 890 |
| 25 | 88 | 13 | 246 | 327 | 37 | 24 | 10 | 1008 | 1474 |
| 26 | 89 | 11 | 134 | 206 | 38 | 24 | 10 | 1025 | 1438 |
| 27 | 87 | 15 | 244 | 344 | 39 | 23 | 7 | 741 | 950 |
| 28 | 88 | 11 | 255 | 281 | 40 | 22 | 3 | 234 | 275 |
| 29 | 91 | 10 | 265 | 228 | 41 | 20 | 1 | 26 | 33 |
| 30 | 91 | 12 | 175 | 217 | 42 | 19 | 5 | 688 | 819 |
| 31 | 92 | 8 | 60 | 138 | 43 | 19 | 9 | 844 | 1193 |
| 32 | 92 | 7 | 124 | 149 | 44 | 18 | 10 | 1008 | 1647 |
| 33 | 92 | 12 | 419 | 419 | 45 | 18 | 1 | 71 | 199 |
| 34 | 93 | 16 | 340 | 428 | 46 | 18 | 4 | 397 | 419 |
| 35 | 92 | 11 | 249 | 310 | 47 | 18 | 5 | 318 | 400 |

| | | | | | | | | | |
|------|-----|-----|------|------|------|----|----|------|------|
| 1636 | 92 | 21 | 487 | 603 | 1648 | 18 | 3 | 137 | 231 |
| 37 | 94 | 11 | 239 | 346 | 49 | 17 | 3 | 167 | 293 |
| 38 | 94 | 19 | 542 | 699 | 50 | 16 | 1 | 31 | 32 |
| 39 | 94 | 18 | 386 | 585 | 51 | 16 | 1 | 24 | 37 |
| 40 | 90 | 16 | 427 | 495 | 52 | 16 | 1 | 63 | 117 |
| 41 | 93 | 13 | 315 | 356 | 53 | 17 | 1 | 53 | 120 |
| 42 | 91 | 11 | 227 | 268 | 54 | 18 | 3 | 370 | 457 |
| 43 | 88 | 29 | 821 | 847 | 55 | 18 | 2 | 65 | 93 |
| 44 | 89 | 29 | 715 | 938 | 56 | 18 | 1 | 72 | 104 |
| 45 | 90 | 7 | 136 | 188 | 57 | 18 | 7 | 374 | 622 |
| 46 | 91 | 8 | 192 | 236 | 58 | 18 | 9 | 492 | 913 |
| 47 | 90 | 4 | 80 | 97 | 59 | 19 | 3 | 85 | 128 |
| 48 | 89 | 6 | 139 | 175 | 60 | 20 | 5 | 545 | 791 |
| 49 | 88 | 11 | 276 | 409 | 61 | 21 | 4 | 687 | 976 |
| 50 | 88 | 6 | 151 | 191 | 62 | 21 | 3 | 405 | 658 |
| 51 | 87 | 5 | 99 | 139 | 63 | 21 | 3 | 267 | 331 |
| 52 | 87 | 12 | 202 | 252 | 64 | 21 | 4 | 431 | 565 |
| 53 | 95 | 20 | 404 | 505 | 65 | 21 | 3 | 477 | 556 |
| 54 | 104 | 20 | 341 | 470 | 66 | 21 | 6 | 344 | 387 |
| 55 | 100 | 16 | 284 | 449 | 67 | 21 | 8 | 620 | 963 |
| 56 | 100 | 10 | 282 | 313 | 68 | 21 | 4 | 237 | 276 |
| 57 | 98 | 36 | 991 | 1305 | 69 | 21 | 5 | 328 | 396 |
| 58 | 96 | 33 | 704 | 1159 | 70 | 21 | 7 | 421 | 574 |
| 59 | 101 | 29 | 553 | 825 | 71 | 21 | 4 | 142 | 249 |
| 60 | 107 | 17 | 342 | 489 | 72 | 21 | 4 | 387 | 526 |
| 61 | 182 | 25 | 448 | 685 | 73 | 22 | 3 | 512 | 832 |
| 62 | 105 | 20 | 376 | 504 | 74 | 22 | 4 | 177 | 222 |
| 63 | 119 | 15 | 325 | 443 | 75 | 22 | 4 | 274 | 484 |
| 64 | 118 | 12 | 328 | 364 | 76 | 22 | 2 | 268 | 342 |
| 65 | 117 | 114 | 299 | 446 | 77 | 22 | 1 | 22 | 27 |
| 66 | 116 | 25 | 549 | 893 | 78 | 22 | 5 | 578 | 789 |
| 67 | 114 | 31 | 588 | 852 | 79 | 23 | 7 | 877 | 1371 |
| 68 | 116 | 24 | 448 | 677 | 80 | 24 | 7 | 946 | 1494 |
| 69 | 118 | 33 | 685 | 878 | 81 | 24 | 9 | 945 | 1333 |
| 70 | 119 | 53 | 781 | 1403 | 82 | 25 | 9 | 795 | 1092 |
| 71 | 121 | 36 | 668 | 1051 | 83 | 25 | 8 | 1169 | 1398 |
| 72 | 121 | 28 | 555 | 741 | 84 | 25 | 8 | 865 | 1243 |
| 73 | 124 | 16 | 365 | 487 | 85 | 25 | 4 | 741 | 1191 |
| 74 | 124 | 38 | 282 | 430 | 86 | 25 | 2 | 418 | 555 |
| 75 | 126 | 12 | 284 | 430 | 87 | 25 | 1 | 269 | 313 |
| 76 | 128 | 11 | 261 | 350 | 88 | 25 | 2 | 146 | 191 |
| 77 | 128 | 6 | 122 | 155 | 89 | 25 | 12 | 1415 | 1965 |
| 78 | 136 | 17 | 312 | 527 | 90 | 25 | 5 | 213 | 32 |
| 79 | 137 | 44 | 800 | 1203 | 91 | 25 | 2 | 55 | 1 |
| 80 | 137 | 54 | 1093 | 1649 | 92 | 25 | 2 | 90 | |
| 81 | 137 | 41 | 679 | 1156 | 93 | 25 | 5 | 338 | |
| 82 | 140 | 30 | 632 | 975 | 94 | 25 | 6 | 681 | |
| 83 | 140 | 37 | 685 | 923 | 95 | 25 | 3 | 246 | |
| 84 | 140 | 31 | 629 | 900 | 96 | 26 | 4 | 708 | |
| 85 | 140 | 19 | 478 | 574 | 97 | 26 | 2 | 80 | |

| | | | | |
|------|-----|----|-----|-----|
| 1736 | 107 | 10 | 270 | 288 |
| 37 | 84 | 16 | 340 | 424 |
| 38 | | 1 | 54 | 58 |
| 40 | | 5 | 143 | 173 |
| 41 | | 5 | 137 | 171 |

Totals 59777 81354

Thus we see the Difference between the christened and buried, in all the milder and severer Mortalities of the last 200 Years both in Country and Towns, being in the former near 59 to 81, in the latter about 97 to 141.

The last Column of Table third, gives, first, the Number of sickly and fatal Years in 151 Country Parishes, during the Time that the yearly Abstracts are taken; then the Numbers baptized and buried in these Years. Thus we see whether all Places are equally liable to the like Number of mortal Years in any given Time; or whether these sickly or mortal Years are equally fatal in all Places or Times; and what is the Proportion between Christenings and Burials in each Place.

Here I beg leave to premise, that it is not every general Indisposition, or short Confinement, that constitutes a Mortality, even tho' several aged Persons, and such as have long lingered, and are worn out by chronic, or other Diseases, should die of that Epidemic, as in Catarrhs, autumnal Diarrheas, and such other slight Diseases of the Season. 2. If an acute Disease breaks out suddenly in one, or some few adjacent or remote Places or Parishes the Season not being sickly or mortal in general, that Illness may be sharp, but its continuance short: For when a general Epidemic of great Mortality comes in smartly,

Duration seldom reaches beyond two, three, or four Months ; but if it sets in lingeringly and slowly, or by several sudden Jirks or Stops, both these I find portend a mortal Season at hand. 3. It may be a sickly or mortal Year in a Town or Country Parish, and yet the Christenings may exceed the Buryings considerably, either because it happens to be a very fruitful Year in that Place (as often, tho' not generally happens) or the Year may be very sickly in that Parish, if compared with other Years, and yet healthy if compared with other Places in much worse Situations and Air.

4. Christenings exceeding the Buryings is no more sign of a healthy Year, than Buryings surpassing the Baptisms is a Sign of a fatal one. For, as I just now said, the one may be a very fruitful Year in that Place, and the other a very barren one ; for in all Registers we find fruitful and barren Years, as well as sickly and healthy : Therefore when we speak of the Healthiness of a Year, let it only be understood in respect to our Place or Neighbourhood ; for from this small Collection of Registers, we find that no Year is universally healthy, or scarce any State or Temperature of the Air ; for that Constitution of the Season that is beneficial to some Situations, Age, or Disease, is hurtful to others. We find that each Place has had several sickly and mortal Years since Registers commenced, and yet Epidemics (Diseases of the Season excepted) have not been many.

In both second and third Tables, there are more sickly and mortal Years represented than really happen, and very often a Year or two, for only two, three, or four Months ; and this

is unavoidable, except the Abstracts were taken monthly. For suppose a sickly Season begins only in *February*, and reigns till *May*, though but of three Months Continuance, yet it takes in a part of, and passes for two Years; or if it begin in *February*, and continue only fifteen Months (since the Year in Registers begins *March 25*) it comprehends a whole Year, and small Parts of two others, and thus it passes for three Years. It is true sometimes a Disease rages in one Place for several Years together, as the late intermittent, remittent, and putrid Fevers, which began in 1726, and continued to plague low, wet, marshy Countries till 1730. The Plague that began in *London* in 1602, was not quite out before 1611; and that which broke out in 1637 was not extinct before 1647. In the first Year died of it above 10000, in the last 3597.

It would both be too tedious and useless to compare the Proportion between the Christening and Buryings of each single Parish by itself, but rather to present their Difference and Havock in the Country to one View.

TABLE FIFTH.

| | | Parishes. | Buried. | Baptized. |
|---------------------|--------------------------------|-----------|---------|-----------|
| From one Year in | 4 and under, to $2\frac{1}{2}$ | 22 | 11910 | 8795 |
| | 6 and under, to 4 | 43 | 29113 | 22590 |
| | 8 and under, to 6 | 27 | 11628 | 8891 |
| | 10 and under, to 8 | 19 | 5027 | 3425 |
| | 12 and under, to 10 | 10 | 2174 | 1419 |
| | 14 and under, to 12 | 7 | 1000 | 626 |
| | 18 and under, to 14 | 10 | 1000 | 641 |
| | 24 and under, to 18 | 7 | 1000 | 871 |
| | 30 and under, to 24 | 2 | 1000 | 52 |
| | 35 and under, to 30 | 4 | 1000 | 92 |
| | Totals | 151 | 60000 | 40200 |

Obs. 1. The ofteneft that fickly Years return in the unhealthieft of thofe Country Parishes, is twice in five or fix Years, and rarely fo often. The feldomeft they return, is from once in 20 to 35 Years; then fome Parishes or Places have, from 8 to 14 fickly Years, for fome other Places one. 2. Of thefe 151 Parishes, 43 have their fickly Year, from once in 4 to once in 6 Years; and 26 Places from once in 6 to 8 Years, as above, which is indeed as long, if not a longer Interval, than commonly happens between one Visitation of Small-pox and Measles and another, exclusive of all other Diseases. 3. When fickly Years return ofteneft, there is a less Disproportion between Chriftenings and Buryings, than where they come feldomeft: For where a Sicknefs generally happens from between once in 4 to 2 Years and an half, there is not on the whole 1-4th Part more buried than baptized: Or where a fweeping Disease comes only once in 4 or 6 Years, the Burials exceed the Baptifms 2-9ths. Where a fickly Time returns from once in 6 to 8 Years, 3-13ths more are buried than chriftened; where it comes from once in 8 to 10 Years, near a 3d more die than are born. If it vifits only once in 10 or 12 Years, there are above 1-3d more buried than baptized; where it comes but once in from 12 to 18 Years, it is the fame: But from 18 to 24, Burials are only 1-5th more; from 24 to 30, they are 2-7ths from 30 to 35; Burials are to Chriftenings 19 to 9, a kind of Plague. 4. The whole Buryings of the fickly and mortal Years
of

of Table second, taken together (tho' 7 or 800 died of the Plague) scarce exceed the Christenings 1-4th. 5. I can find nothing remarkable in the Difference of Sexes baptized or buried, either where Sickness comes feldomest or oftenest, or in a Medium; for in 20 Parishes oftenest visited, Males baptized are to Females near 18 to 17, Buried $13\frac{1}{2}$ to $14\frac{1}{2}$; where it comes feldomeft, Males born are to Females 20 to almost 19, Buried 15 to 15. As to the Medium, Males baptized are to Females about 16 to 15, Buried 13 to $13\frac{1}{2}$. 6. As to Salubrity or Insalubrity of Places, where Sickness or Mortality visit more rarely or frequently, there appears no visible or material Difference in that. Some of the healthiest Situations have frequently Sickness, and others as unhealthy have it as feldom; but the Illnesses of those different Places, are often of as different Kinds. The former have their frequent eruptive and inflammatory Diseases, the latter their flow intermittents, remittents, putrid, and erratic Fevers. It is true, some rare times the former Places are visited with the latter Diseases, but rarely except they are Epidemics; nor are they of a great Spread, Duration, or Execution. The latter's Places have also the former's Diseases, but (eruptive Fevers excepted) more mildly and rarely; for each Country or Situation is more liable to some Diseases than others, and by Traffic and Commerce Endemics become Epidemics, as far as Air and Climate will allow.

little more than one Century (for the first three of which we have not the Christenings, I have endeavoured to supply them from a yearly Medium taken of these between 1604 and 24, according to the Increase of the City in that time) the Totals baptized were 168087, buried 477047. In the foreign Registers the Baptized are to the Buried, as 1 to $3\frac{1}{2}$, or as 3 to 10; in the *London* Bills as 1 to $2\frac{1}{2}$, or as 6 to 17. But in the great Plague of 1665, they were scarce 10 to above 97 or 100.

From foreign Bills we see the dire Effects of these terrible Correctives of the Redundance of Mankind, *viz.* Plague, War, and Famine, in Towns and Cities especially; and that the Continent is more exposed to the former two than our Islands, except the first is imported; which Blessings, together with Liberty, natural Advantages of Trade, Exemption from the terrible Effects of Thunder and Lightening, desolating Earthquakes, Fertility of our Soil, Temperature of the Air, and Cultivation of Sciences, are the Blessings of *Britain*, though not the most desirable Climate, as was shewed at the beginning.

This Table might lead to enquire, 1. What the more general Epidemics were that have happened since the beginning of our Registers in 1538. 2. What were the Seasons and Constitutions of the Air which preceded and accompanied them. 3. What kind of Epidemics, different and opposite Seasons, and Constitutions of the Air, do ordinarily produce. 4. To what Soils, Situations, Businesses or
Manners

Manners of Life each different Epidemic is more favourable or fatal. 5. To what special Epidemic each different Temperature of Body, Age, Country, or Sex, is more liable, and by which they are most endangered, and in what Temperatures of the Air chiefly. 6. Whether there are any Forerunners or Warnings preceding great desolating Epidemics, which are to be regarded. 7. Whether Epidemics have any fixed Period of returning in the same Country Climate, or Soil. 8. Whether one and the same Method of Practice is equally successful in the same Genus and Species of Epidemics at different Times; or whether the Method of Cure varies with the several remote Causes. 9. How far the Practice varies in different Constitutions of Body, during the Reign of any one Epidemic. 10. If from the several dispersed Histories of former Epidemics collected and compared with their several procatactic Causes, it may not be probable and practicable, to fix on generally successful Rules of Practice in each future Epidemic. 11. The Agreement or Disagreement of Epidemics, and their different Methods of Cure in sundry Countries. But these Enquiries being quite new, a Work of *Herculean* Labour, Time, intent Application of Mind, Reading, attentive Observation, &c. belong to a general History of the Air, and Epidemics, a distinct Work of itself; and of which I have, by several Years close and indefatigable Study, prepared a Specimen for the Press.

From the Degrees of Mortality, let us reflect a little on its Invasion. Here I find a Difference in Registers, for several Places have their different Times of Seizure, Duration, and Termination of Epidemics, which the curious Physician or Naturalist will find by consulting deliberately and attentively the Registers of their several Places, for the last two Centuries backward. For Specimen I shall give my Remarks in this Case, on one of a pretty large Inland Town, and refer the rest to another Table. That Mortality which breaks forth in *January*, mostly stops a few Weeks after the Sun has past the vernal Equinox; if it passes that, it generally exceeds the Summer Solstice; if it stays not there, it goes on to the autumnal Equinox, but rarely reaches the Winter Solstice. That which begins in *February* is mostly over before the Summer Solstice (Small-pox or Measles excepted) it seldom reaches the Harvest Equinox; but of the few Instances which have reached that Time, some of them reach the Winter Solstice, or even compleat the Year, but very rarely in the same Place. A fatal Season getting in with *March*, often reigns till the next *March*; though in some Instances it has ceased in *August* or *September*, or died out with the Winter Solstice. If it sets in with *April*, it ceases in *June*, *August*, *October*, *November*, or *January*, rarely finishes its Year. *May* often extends its beginning Mortality to the next *March*, but in several Instances in this Register, it has ceased in *July*, *October*, *January*,
or

or *February*. Mortalities very seldom happen in *June*, but when they do, they mostly continue six or twelve Months. If it begins in *July*, it seldom ceases at the next Equinox, but prevails till the Winter Solstice or vernal Equinox. If it attacks in *August*, it reigns till *December*, *January*, *March*, *May*, *June*, or *July*. When it sets in with *September*, it is not at an End before *January*, *February*, *March*, *April*, *May*, or *July*. That which appears in *November*, mostly lasts till *February*, *March*, *June*, or *July*. That of *December* knows no End before *March*, *April*, *June*, *August*, or *September*; but here I find regard must always be had to the remote Cause of the Epidemic; nor should Catarrhs, Diseases of the Seasons, or Measles or Small-pox, be included here. Thus much for the Beginning, Duration, and Termination of Mortalities in general, in that Place.

As to the Havock or Destruction they make of People, I find, according to this Register, taking the Kingdom together, that the Mortalities beginning in *December*, *January*, and *April*, are to these setting in with *March* or *August*, as 28 to 26; such as come in *March* or *August*, are to these of *May* and *October*, as 26 to 22; these of *May* and *October*, are to these of *February* and *November*, as 22 to 20; these in *February* and *November*, are to those of *July* and *September*, as 20 to 15; those of the last two Months, are to these in *June*, as 15 to 7; so that Mortalities begin four times in *December*, *January*, and *April*, for once in

June. But of all Mortalities, that which begins in *January* is generally most fatal, being to that which sets in in *December*, as 55 to 43; that of *December*, is to that of *November*, as 43 to 48; that of *November*, to that of *March*, as 38 to 34; that of *March*, to that of *July* or *September*, as 34 to 25; that of *July* and *September*, to that of *February* and *October*, as 25 to 23; *February* and *October*, to *April* and *August*, as 23 to 20; that of *April* and *August*, to that of *May*, as 20 to 15; that of *May*, to that of *June*, as 15 to 5; therefore that of *December* is 11 times more fatal than that of *June*. And as a Mortality begins 4 times in *January*, for once in *June*, one time with another, it is therefore 44 times more fatal; for that which sets in in *June*, comes in the middle between the vernal and autumnal Seasons or Constitutions; it is too late for the former, and too early for the latter: But that which sets in in *December* or *January*, has the whole Advantage of the vernal Constitution before it, to encrease its Havock and Duration.

The sickly Years in *England*, taking one with another, including Childrens Diseases, are to the healthy about 2 in 11 the moderate Years; or these of a Medium between healthy and sickly, are about 1 of 3. The very healthy Years, whose Mortality falls short of both the others, are to the whole about 23 or 24 in 44; so that the very healthy are to the fatal, as 23 or 24 to 8; and to the moderate as 23 or 24 to 13 or 14. But though this in
general

general is pretty near the Proportion between healthy, moderate, and fatal Years, yet we saw it is far from being equal in all Places; for several large populous Towns, and low fenny Situations, have, one time with another, a sickly Season once in about three or four Years: For it has been observed, that once in about four or five Years, (taking one time with another) there happens some special Alteration in the Air and Seasons, of some Continuance. Large and populous Towns (except extraordinarily situated) are seldom free from some contagious Disorder, which wants only a favourable Opportunity of the Air to propagate its Infection: But many Places have not a mortal Year above once in 10, 12, 14, 18, 20, 24, 30, yea even in 35 Years.

The different Degrees of Mortality itself in these Years, is still wider, according to the different Places, Kinds of the Epidemic, Season of the Year, State of the Air, &c. for ordinarily in *London*, and some other large and populous Places, one time with another, a Mortality carries not off above 1-3d, 1-4th, or 1-5th more than in healthy Years; yet in *London* I have known as many die in a Month, as usually die in 3, or between 3 and 4. But in large, open, healthy Country Places, one fatal epidemic Year, kills as many as usually die in 6, 10, 15, nay sometimes in 18 or 20 of the healthiest Years, (but this is far above the Standard in general, taking the whole together, as we observed above) as though the purest healthiest Air, when once tainted, and

the strongest Constitutions disposed by the Season, both conspired to make the greatest Wreck of People.

Thus far we have noticed from local Mortalities, which are often bounded within a very few Miles, being either from Childrens Diseases, inflammatory Distempers, Intermittents, or some of their Consequences or allied Tribe. As to general or national Mortalities, which are properly called Epidemics, they return not above once in 12, 13, 14, or 16 Years, there being but, strictly speaking, 10 or 11 in 240 Years. They are sometimes very quickly over, as the Sweating Sickness, which did its Execution in a Month's time; others are very lingering, as the late Intermittents which reigned in the Levels near 7 or 8 Years together. The more general Mortalities since the beginning of the 16th Century, were in 1505 and 28, both from a spotted malignant Fever; 1540 was an excessive hot and droughty Summer, Agues and Dysenteries were epidemic; 43 the Plague was in *London*, and the Terms were adjourned in Winter; it was a very rainy Summer, a great Dearth of Cattle, a strong Frost in Winter, and a Run of fatal inflammatory Diseases in the Spring. In 45 the Troop-Gallant (a kind of catarrhus Fever) raged far and near, and verminous Fevers, which carried off abundance of young strong People. In 45 the Plague raged in *London*, and all *Europe* groaned under a pestilential Peripneumony, with a Spitting of Blood, and Difficulty of Breathing; it was most contagious and

and fatal. In 56 began and raged in 57 and 58 burning-hot Fevers or Agues, and Remittents, which consumed much People in *England*, especially grave Men. In 62 the Soldiers brought the *Hungarian* Fever, (a kind of Plague to this Nation, for in *London* died of it 20136) from *Newhaven* into *England*, which made sad Havock. In 64 fatal Defluxions, Catarrhs, then Quinsies; 68 was very rainy, a great Dearth, a fatal, putrid, spotted Fever, which raged, and had not finished its Perambulation in 70; for from 68 to 74, was all most excessively intemperate southerly, windy, rainy, foggy Meteors, Dearth, Famine. In 73 Bloody-Flux, Measles, and verminous Fevers. In 74 a fatal epidemic Semi-tertian, Epilepsies, Diarrheas, and the Plague raging in several Places. In 77 sickened and died many in *Oxfordshire* (according to Dr. Plot, p. 24, 25. *History of Oxfordshire*) at the Assizes held there July 4, 5, 6, when one *Jenkes* a Catholick was arraigned and condemned for speaking Treason, he lighted a Wick or Candle he had made of such Ingredients as raised a Steam, that from July 6 to August 12, killed 300 in the City, and 200 in the Country, that were present at the Condemnation. (See the whole Story at length in *Webster* on Witchcraft, p. 245.) In 8 a general great Catarrh; 83 was excessive hot and drougthy, Bloody-Fluxes; in 85 fatal Spring Plurisies and Peripneumonies, with some Malignity; in 86 a Famine; in 89 was the *Hungarian* Fever brought from *Portugal* by the *English* Fleet.

and dispersed over the Nation; in 97 Great Rains, Scarcity and Dearth; in 1601 Dysenteries and verminous Fevers; 1603 the Plague in *London* from *Ostend*, whereof died 38244, and many died of it in *Chester*. And in 1604 it raged in many Country Places; 1607, 9, 14, fatal autumnal Dysenteries; 10 the Catarrh of 1510 and 80. It was an excessive Drought and Heat in Summer, Tertians epidemic; 21, 22, wet, southerly, and moist, a continual contagious malignant Fever, or *Hungarian* Disease; 23, 24, a malignant spotted Fever, which in 24 turned to the Plague, and in 25 and 26 turned to the former Fever again; it began in *England* in 22 or 23. In 38 an excessive hot and dry Summer, Tertians epidemic; 40 a frosty *October*, epidemic Pleurifies next Spring; 43 a moist, southerly, rainy Spring, and excessive hot Summer, an epidemic malignant Fever, and Hemitritæon; 45 an excessive hot and dry Summer, Bloody-Fluxes; 48, 49, rainy Years, a slow Fever; 56 Small-pox general, a hot Summer here, rainy and southerly abroad; 57 Tertians; 58 a general Catarrh in *April*; an excessive hot Summer, in this and two following Years, the whole Nation groaned under a Load of Intermittents; 61 to 64, *Sydenham's* depuratory Fever, which, however, in 65 depurated to the fatalest Plague ever the Metropolis felt; 64 Quartans again; 66 great Drought, and a severe Dysentery; 67 an epidemic Fever; 67, 68, Small-pox, variolous Fever, and Dysentery; 69 a very cold Spring and *May*, an excessive

cessive hot *July, August, September, and October*, a most fatal Epidemic Fever, then a *Cholera Morbus* and Dysentery, which continued till 72; 70, 71, 72, Small-pox, Measles, Bloody-Flux, and bilious Cholic; 73, 74, 75, an epidemic Fever, Measles, and Small-pox; 75 an epidemic Catarrh; 78, 79, the same Fever that reigned before in 69; 79 a general Catarrh; 80 a frosty cold Winter, an excessive hot Summer, safe Agues general; 83, 84, frosty cold Winters, excessive hot Summers, a general Dysentery; 87 a very rainy Year, spurious Intermittents, Diarrhea; 88 an epidemic Catarrh; 90 Tertians prevailed; 91, 92, 93, an epidemic spotted Fever, the same as 1505, 1528, Dysenteries common; 98, 99, a general Catarrh; the same Spotted Fevers prevailed in *England*, as had done abroad in the two last Years. The Weather from 94 to 99, the same as from 1568 to 74 before; Scarcity, Dearth; and Famine. Thus I have given a short Syllabus of the chief general Diseases of the two last Centuries; but their Invasion, Duration, Symptoms, and Method of Cure belonging to the History of Epidemics, are alien to the present Purpose. I might have brought down the Syllabus to the present Time, but the late Histories of Epidemics being almost in every body's Hand, it would have been a meer Tautology.

The more general Epidemics then, during our Registers, are these which began in 1543, and raged in 44 that which appeared in 1557, and raged till 59; that which began in 70, and

and lasted till 74; and that of 97, 98; that of 1622, and lasted out 25; that of 42, and continued till 45; that of 57, 58, 59, that of 69, and remained till 74; and of 78, 79, of 81, and lasted to 84; that of 98, 99, 1722, 23; that of 26 to 30; that of 40 to 43; in all fourteen: Where the Reader may observe a near Correspondence, nay almost a Coincidence of Mortalities near about the same Time in each Century. It is also observable, from the several Registers, that most of these general Epidemics have their first Rise in the South, and extend in a progressive Course to the North of *England*; but not one Register can be produced in their Favour, who will have an Epidemic to continue in the same Place 7 or 8 Years together. Endemics may reign Centuries, but not Epidemics (Intermittents in flat fenny Countries excepted, and indeed properly speaking they are Endemics there.) And if we allow Epidemics to depend mostly on the sensible Qualities of the Air, the Nature of the thing will not allow their Reign to continue 7 or 8 Years in one Place, since, as was observed above, that there generally is an Alteration of the Air and Constitutions once in 4 or 5 Years in this Island; indeed the same Constitution prevailing from 1569 to 74, and from 1694 to 99; and a prevailing North Wind in *Prussia* for 12 Years together, are extraordinary Instances which seldom occur.

It is a bold Assertion of a Physician, and bewrays his Ignorance both of natural and medicinal Histories, to say, that because the
 Temperature

Temperature of the Air is not with us fixed to the same Seasons as in *Greece* and *Asia*, therefore we neither know when nor what Epidemics will attack, nor how they are to be cured. And till we see a long Series of Observations for several Centuries, their Judgment and Usefulness is as much to be disputed, who give us a History of Epidemics without the Weather or Seasons; nor would the World be much benefited by a long History of Weather and Diseases, but without the Cure. It is also a strange Jumble of History of Epidemics, to intermix all the intercurrent single Diseases, whose Method of Cure have no Dependance on the other, nor have the least common Symptoms, except Sickness or Pain. It is also a great Defect and Loss for such as favour us with a History of Weather, Diseases and Cure, not to give the yearly Births and Burials of the Years they write of. I find in the Registers, that sometimes Disturbances of the Body politic, attend Disorders of the natural Body, as from 1556 to 59, 1623 4, 1643 4, 1684, 94 to 7, 1723, 40, 41, &c. As though Religion, Liberty, Property, and Trade declined, sickened and died, or revived, flourished and rejoiced together.

The fourth Table proves, that how healthy soever the Year may be in general, yet Sickness and Mortality invade and attack some Places, all are never exempted at once, nor visited at once; the only Difference is, that more are afflicted in some Years than in others,

or Diseases sometimes from a meer universal Cause, as the Air or Food ; such are properly epidemic Years ; or from a more particular or accidental, and are circumscribed within lesser or narrower Bounds, not being assisted or encouraged by outward Aids, to make a larger and wider Spread. Some Diseases (as was said) are of a shorter, others of a longer Continuance ; but Distempers from bad or unwholesome Food, or a long unhealthy State of the Air and Seasons, last longest. Sometimes Sicknesses arise in a few Parishes, or Corner of a Country, and die out where they began ; at other times they begin and make a progressive Tour over the whole Island, yea over the whole Globe, and take several Years to make their general Perambulation, still shifting from place to place, and in their Progress often change Symptoms, but sometimes their Species, according to the Climate and Constitution. Some Diseases are not only far more contagious, but more fatal than others, as there is no Proportion in the Havock made by slight Catarrhs and autumnal Diarrheas, and epidemic putrid Fevers, or a malignant Peripneumony ; I say there is little Comparison between them either in Danger or Duration. It was observed before, that a Variety of Soils, as well as States of the Air, give Rise to different Diseases, therefore most Years are sickly either in one Place or another ; for very high cold Situations, dispose to inflammatory Distempers ; low and moist cause Relaxations and Diseases depending therefrom ; a sultry
hot

hot moist Air, to malignant or pestilential Disorders, &c.

From the first Trace in our Registers, of epidemic or mortal Years in the Country Parishes, till 1644, were baptized 6950, buried 22243, in Towns 33184, 48185; where, in the first, Births are to Burials not 7 to above 22, or 1 to above 3; in Towns as 11 to 16. From the beginning of the Civil Wars in 1644, till after the Restoration in 61, in the Country registered Births are 5624, Burials 7889; in Towns 3951 to 5932, &c. which shews, that as general Epidemics in the Country, were far fewer before the Civil Wars than since, so they were more mortal when they came: It also shews their greater Severity in the Country than in Towns; and that during the Civil Wars, Country Registers suffered more, or were more neglected than Town Registers.

From collecting yearly or monthly Abstracts, from a great Number of Registers, and comparing them with a like Collection of Histories of the Weather, Air, Seasons, Meteors, States and Prices of the Fruits of the Earth yearly, we may be evidently convinced of the Effects of rainy, drougthy, cold, hot, frosty, open, cloudy, foggy, misling, clear, seasonable or unseasonable Weather, or Parts of the Year; of the long Duration of high Winds or Calms; the long Continuance of Winds in one Quarter, or their often Shiftings or Veering; of the different Effects of a long continued North, South, or East Wind; of much Thunder, Lightening, Comets, Earthquakes, and
other

other Meteors, in general, or at any Season of the Year.

This would also give the Effects of Scarcity, Dearth, Famine, Plenty, of good or bad, ripe or unripe, sound, blasted, mildewed, or otherwise faulty Fruits of the Earth, on all Sexes and Ages. These Collections would shew how far each, or any of these is hurtful, exclusive of, or conjoined with preceding and present Constitutions of the Air, Seasons, Product of the Earth, and use of animal Food. Hereby we may be informed whether *Aurora borealis*, Conjunctions or Oppositions of Planets, Eclipses of the heavenly Bodies, &c. affect us, or are to be dreaded; and how far sudden, and extream Changes of Weather, influence our Bodies; or what Situations such Changes most affect; or whether they affect Generation, Gravitation, &c. And in such Times of any great Distemper, or Death of Cattle, or other Brutes, how far; or whether it portended Sickness or Mortality to People. But these Questions would be readiest answered by weekly Abstracts of the Bills of Cities and great Towns, for many Country Parishes are too small to discover them.

Registers alone shew the Rise, Progress, Extent, Severity or Mildness, Duration, Seasons, and Degrees of Mortality, in sundry Places, by Endemics and Epidemics. They likewise shew which Diseases have their frequentest Returns, and what Places and Soils are most liable to them, or suffer slightest or sharpest by them. Registers compared not only with the Histories
of

of Epidemics, but with the Reign or Prevalency of the several Sectaries in Physic, shew the Effects of the different Practices in Cities and large Towns, during the Reign of the same Epidemic, from the same common Cause, and leave the Matter no longer a Controversy among their critical and hypothetical Gentlemen, but apply the several Practices to the different Successes of those Times.

Knowing the Month or Season when an Epidemic begins, and whether it is of the general or particular, chronic or acute kind, the Registers of the Place being applied to and examined, it may from former Instances, compared with the Season of its Attack, and Constitution of the Air, be guessed at pretty near, how long it will continue, long or short Time, whether it will be gentle or severe. Registers shew, which of the two Centuries they have been kept, is most healthy or sickly, or what Parts, or Decades of each, or both Centuries, have been so; and whether the Places where Epidemics appear oftenest or seldomest, are most healthy. From Towns and great Cities suffering less by Epidemics in general than the Country, perhaps the Inhabitants of the Country suffer more by Epidemics from their being long accustomed to a pure Air, or their want of such Effluvia and Exhalations in the Atmosphere, as may absorb, sheath, break, or change the contagious morbid Effluvia in the Air, or arising from the Infected, Sick, Dead, or their Excretions.

T A B L E

TABLE SIXTH.

Of the Beginning, Duration, and Termination of Epidemics, according to fourteen different Parish Registers of distant Places. Column first, the Number of Places afflicted that Time each Month; Column second, the Months this Sickness continued; Column third, Males that died; Column fourth, Females. The Number of sickly Years in each of the fourteen Places during their long Register, 8, 12, 6, 12, 26, 16, 10, 11, 45, 8, 9, 15, 40, 27.

| <i>January.</i> | | | | <i>April.</i> | | | |
|------------------|----|------|------|---------------|----|------|-----|
| 1 | 3 | 28 | 13 | 4 | 3 | 88 | 93 |
| 5 | 4 | 126 | 143 | 1 | 4 | 53 | 32 |
| 2 | 5 | 161 | 170 | 4 | 5 | 144 | 108 |
| 4 | 6 | 430 | 492 | 4 | 6 | 88 | 101 |
| 4 | 7 | 277 | 278 | 2 | 7 | 64 | 50 |
| 1 | 8 | 158 | 143 | 2 | 8 | 51 | 45 |
| 1 | 9 | 32 | 30 | 1 | 9 | 33 | 41 |
| 1 | 14 | 44 | 27 | 1 | 10 | 87 | 55 |
| 1 | 17 | 204 | 186 | 1 | 11 | 38 | 33 |
| 2 | 18 | 653 | 627 | 3 | 12 | 223 | 175 |
| 2 | 19 | 572 | 479 | 1 | 13 | 50 | 50 |
| 24 | | 2685 | 2588 | 1 | 15 | 178 | 159 |
| <i>February.</i> | | | | 25 | | 1097 | 942 |
| 1 | 2 | 3 | 8 | <i>May.</i> | | | |
| 2 | 3 | 59 | 47 | 5 | 3 | 176 | 125 |
| 3 | 4 | 89 | 200 | 3 | 4 | 86 | 79 |
| 3 | 5 | 107 | 98 | 4 | 6 | 139 | 141 |
| 3 | 6 | 93 | 89 | 2 | 7 | 151 | 163 |
| 1 | 9 | 32 | 35 | 1 | 9 | 48 | 52 |
| 1 | 10 | 11 | 14 | 3 | 10 | 82 | 65 |
| 1 | 12 | 29 | 23 | 2 | 11 | 125 | 107 |
| 1 | 13 | 72 | 73 | 1 | 12 | 30 | 25 |
| 1 | 18 | 25 | 192 | 1 | 13 | 31 | 26 |
| 17 | | 520 | 779 | 22 | | 868 | 783 |
| <i>March.</i> | | | | <i>June.</i> | | | |
| 1 | 3 | 31 | 40 | 1 | 3 | 19 | 29 |
| 1 | 4 | 117 | 106 | 1 | 6 | 52 | 67 |
| 1 | 5 | 20 | 13 | 2 | 7 | 40 | 49 |
| 5 | 6 | 245 | | 1 | 8 | 34 | 44 |
| 1 | 7 | 15 | 14 | 1 | 11 | 30 | 36 |
| 3 | 8 | 87 | 90 | 6 | | 175 | 205 |
| 1 | 9 | 43 | 46 | | | | |
| 1 | 10 | 85 | 70 | | | | |
| 3 | 12 | 88 | 75 | | | | |
| 3 | 13 | 191 | 198 | | | | |
| 1 | 15 | 200 | 193 | | | | |
| 2 | 20 | 556 | 500 | | | | |
| 23 | | 1678 | 1555 | | | | |

| <i>July.</i> | | | | <i>October.</i> | | | |
|-------------------|------|------|-----|------------------|------|------|-----|
| 1 | 2 | 25 | 11 | 2 | 3 | 117 | 132 |
| 1 | 3 | 41 | 35 | 2 | 4 | 107 | 99 |
| 1 | 4 | 19 | 29 | 5 | 6 | 147 | 159 |
| 3 | 6 | 78 | 67 | 2 | 7 | 107 | 100 |
| 2 | 7 | 77 | 58 | 6 | 8 | 292 | 310 |
| 1 | 8 | 21 | 32 | 1 | 9 | 106 | 78 |
| 3 | 9 | 176 | 180 | 1 | 10 | 254 | 262 |
| 2 | 12 | 161 | 141 | 1 | 14 | 176 | 172 |
| 1 | 36 | 707 | 603 | 20 | 1306 | 1311 | |
| 15 | 1305 | 1156 | | <i>November.</i> | | | |
| <i>August.</i> | | | | 2 | 3 | 141 | 119 |
| 1 | 3 | 28 | 33 | 4 | 4 | 96 | 93 |
| 1 | 4 | 36 | 27 | 2 | 5 | 127 | 135 |
| 1 | 5 | 44 | 26 | 1 | 6 | 83 | 73 |
| 6 | 6 | 263 | 192 | 1 | 7 | 26 | 34 |
| 2 | 7 | 45 | 52 | 2 | 9 | 139 | 138 |
| 4 | 8 | 115 | 101 | 2 | 10 | 148 | 125 |
| 1 | 9 | 53 | 42 | 1 | 12 | 145 | 135 |
| 2 | 10 | 56 | 49 | 1 | 16 | 36 | 39 |
| 4 | 11 | 314 | 307 | 1 | 17 | 286 | 270 |
| 1 | 12 | 34 | 41 | 1 | 20 | 292 | 251 |
| 1 | 15 | 25 | 37 | 1 | 21 | 308 | 286 |
| 1 | 20 | 184 | 173 | 19 | 1827 | 1698 | |
| 25 | 1197 | 1080 | | <i>December.</i> | | | |
| <i>September.</i> | | | | 3 | 3 | 319 | 359 |
| 2 | 5 | 88 | 54 | 7 | 4 | 192 | 229 |
| 3 | 6 | 231 | 220 | 1 | 5 | 30 | 29 |
| 2 | 7 | 192 | 201 | 4 | 6 | 249 | 238 |
| 2 | 8 | 127 | 107 | 2 | 7 | 116 | 86 |
| 2 | 9 | 193 | 209 | 3 | 9 | 145 | 167 |
| 1 | 15 | 101 | 126 | 1 | 10 | 30 | 33 |
| 1 | 19 | 26 | 24 | 1 | 13 | 62 | 62 |
| 1 | 21 | 271 | 284 | 1 | 14 | 31 | 26 |
| 14 | 1229 | 1225 | | 1 | 15 | 167 | 203 |
| | | | | 1 | 16 | 213 | 240 |
| | | | | 1 | 17 | 265 | 264 |
| | | | | 1 | 19 | 271 | 230 |
| | | | | 1 | 40 | 574 | 504 |
| | | | | 28 | 2664 | 2670 | |

1st *Observ.* That in the general, for the first four, five, or six Months of a Sickness or Mortality, Females have rather the worst of it; for here Males buried are to Females, as 30 to above $30\frac{1}{2}$; but in the latter Part of it, Males are mostly the greatest Sufferers, as here, on the whole, above 65 to 52: But in the intermediate Part they come nearer a *Par*, being about 42 to near 41, which is scarce the Difference of the Sexes baptized. 2. That Epidemics, or sickly Seasons, begin oftener in *December, January, April, and August*, viz. 102 times; in *June, July, September, and February*, only 52 times. 3. Hereby we see which Diseases were Acutes or Distempers of the Season, and which were not; for the former mostly cease on the Approach of the next Season, as Catarrhs, Diarrheas, *Cholera Morbus*, inflammatory Diseases, (Eruptive Fevers excepted) only sometimes one Disease may tread on the Heels of another, and protract the Mortality two, three, or four Seasons, and make it all appear one continued Illness, where indeed it is two or three, as Quotidians turning to Tertian or Quartans, & *à contra*; or Intermittents changing to Remittents, or Remittents altering into Putrids, or Catarrhs into Hectics, or Measles succeeding Small-pox, or Chin-cough preceding or succeeding either, &c. or Epidemics going before, or following close to Diseases of the Seasons; or several of these immediately succeeding one another, and constituting a long sickly Time. 4. Hereby we see that Spring Diseases set in much earlier than

than Autumns, continue much longer often, and therefore must be more mortal; the former beginning in *December* (wherein we see most Diseases begin of any Month in the Year) the other scarce before *August*. Of the 28 Attacks that Sicknesſes have made in theſe 14 Places in *December*, 20 of them have ceaſed before the Eruption of the Autumns. 5. Hereby we ſee whether vernal or autumnal Invaſions are moſt frequent and dangerous; the Vernal we ſee reach from *December* till *May*, and reign till *August*; the Autumns from *August* to *January*; the former are 139, the latter 78. In the one died 18829, in the other 10873. The Mortalities of this Table, that exceed the common Reign of the Diſeaſes of the Season, are 156. Such as terminate before the next Season, are 98. But let it be minded, that of 69 different Seizures in *December*, *January*, and *February*, only 21 of them reach and join the Autumns; ſo that 48 terminate within the Season. And of 185 vernal Invaſions, only 50 of them ceaſe before the beginning of the Autumns, and 135 reach, join, and ſome of them exceed the Autumns, and continue the next Vernal. But as a far greater part of the *December* Invaſions have finiſhed their Courſe before autumnal Diſeaſes begin, ſo ſtill a greater Share of the *March* Diſeaſes ſurvive the vernal, and join the autumnal, viz. 20 out of 23. Of 25 Seizures in *April*, only 9 are over before *August*; and of 25 Seizures in *August*, no than 3 are over before *December*, t^l

Vernals begin; and of 15 Invasions in *July*, only 6 are over before *December*. But of all the Attacks in the several Months of the Year, most of these in *March* subsist longest, viz. 9; 6 in *December*, 6 in *January*, 3 in *February*, 5 in *April*, 2 in *May*, 3 in *July*, 3 in *August*, 3 in *September*, 1 in *October*, 5 in *November*. From this Table we see whether the Attacks of vernal or autumnal Diseases are most to be dreaded, which of longest Continuance, and most fatal. The Curious may deduce several other Instances from this Table, or they may hereby examine their own Registers, as I find among the 14 Registers in this Table.

TABLE

TABLE SEVENTH.

Shewing the Increase or Decrease of Towns, by comparing the yearly Births and Burials taken at a Medium, for seven or ten Years, with the last ten Years of the second Period; the Year prefixed to each Period, is the last Year of that Period, whose Register we have; or where there is but one Period, it gives them yearly at a Medium.

| | | | | | | | |
|---------------------------|------|-------------------|------------------|-------------------|-------------------|-------------------|-------------------|
| Liverpool | 1670 | 56 | 42 | 1745 | 476 | 598 | |
| Leeds | 1581 | 152 | 130 | 1745 | 591 | 579 $\frac{1}{2}$ | |
| Sheffield | 1570 | 106 $\frac{1}{2}$ | 71 $\frac{1}{2}$ | 1745 | 506 $\frac{1}{2}$ | 506 $\frac{1}{2}$ | |
| Birmingham | 1619 | 79 | 56 | 1745 | 519 | 551 | |
| Manchester | 1582 | 165 | 149 | 1745 | 523 | 445 | |
| Hallifax | 1548 | 236 | 168 | 1745 | 335 | 318 | |
| Nottingham, St. Mary's | } | 1612 | 81 | 61 | 1736 | 220 | 231 |
| Warrington | | 1623 | 108 | 111 $\frac{1}{2}$ | 1745 | 170 | 158 $\frac{1}{2}$ |
| Stockport | 1593 | 71 | 91 $\frac{1}{2}$ | 1745 | 109 | 144 | |
| Bradford | 1609 | 168 | 81 | 1739 | 179 | 121 | |
| Ely | 1663 | 140 $\frac{1}{2}$ | 160 | 1732 | 118 | 120 | |
| Tiverton | 1569 | 85 $\frac{1}{2}$ | 53 | 1659 | 171 $\frac{1}{2}$ | 118 | |
| Ganeſburgh | 1574 | 52 | 37 $\frac{1}{2}$ | 1733 | 110 $\frac{1}{2}$ | 117 $\frac{1}{2}$ | |
| Cranebrook | 1569 | 68 $\frac{1}{2}$ | 56 $\frac{1}{2}$ | 1649 | 97 $\frac{1}{2}$ | 106 $\frac{1}{2}$ | |
| Prefcot | 1641 | 124 | 64 | 1735 | 112 | 105 | |
| Coventry, Trinity | 1623 | 61 | 25* | 1744 | 243 | 365 | |
| Doncaſter | 1566 | 62 $\frac{1}{2}$ | 70 $\frac{1}{2}$ | 1745 | 99 $\frac{1}{2}$ | 90 | |
| Nampwich | 1619 | 85 | 57 | 1740 | 101 | 89 | |
| Cheſterfield | 1567 | 62 | 44 | 1732 | 99 $\frac{1}{2}$ | 88 | |
| Ponteſract | 1595 | 79 | 75 | 1744 | 115 | 86 $\frac{1}{2}$ | |
| Mansfield | 1568 | 30 | 19 | 1741 | 95 | 84 | |
| Rotherham | 1602 | 104 | 96 | 1732 | 107 | 83 | |
| Norwich | 1621 | 46 | 37 | 1732 | 66 | 82 | |
| Banbury | 1567 | 45 | 41 | 1736 | 70 | 81 | |
| Malton | 1618 | 61 | 50 | 1742 | 67 $\frac{1}{2}$ | 61 | |
| Kefwick | 1575 | 100 | 60 | 1737 | 41 | 60 | |
| Leuton | 1612 | 60 $\frac{1}{2}$ | 40 $\frac{1}{2}$ | 1744 | 77 | 79 | |
| Thorn | 1648 | 56 | 55 | 1740 | 58 | 49 | |
| Barnſley | 1578 | 27 | 20 | 1737 | 62 | 44 | |
| Melton-Mowbray | 1548 | 33 | 24 | 1744 | 39 | 43 $\frac{1}{2}$ | |
| Cheltenham | 1567 | 32 | 24 | 1737 | 37 | 43 | |

| | | | | | | |
|----------------------|------|--------------------|--------------------|------|-------------------|--------------------|
| Selby | 1630 | 53 $\frac{1}{2}$ | 36 | 1734 | 46 | 43 |
| Wigton | 1617 | 48 | 37 | 1737 | 43 | 37 |
| Pickering | 1568 | 41 | 36 | 1741 | 35 | 32 |
| Kingscliff | 1599 | 20 | 16 | 1737 | 25 | 25 |
| Hartlepool | 1577 | 9 $\frac{1}{2}$ | 5 | 1737 | 31 | 21 |
| Uppingham | 1580 | 16 $\frac{1}{2}$ | 11 $\frac{1}{2}$ | 1741 | 38 | 33 |
| Kingsbridge | 1621 | 24 | 18 $\frac{1}{2}$ | 1739 | 13 | 18 |
| Paris | 1672 | 17919 | 18814 | 1736 | 18688 | 17804 |
| Dresden | 1626 | 533 | 443 | 1725 | 1515 | 1624 $\frac{1}{2}$ |
| Dublin | 1668 | 993 | 1607 | 1729 | 1625 | 2905 |
| Freyburg | 1626 | 427 | 467 | 1717 | 337 | 309 |
| Aufburg | 1510 | 2049 | 2279 | 1720 | 83 $\frac{1}{2}$ | 917 |
| Edinburg | | | | 1742 | | 1197 |
| Norrage | | | | 1742 | 901 | 1192 |
| Newcastle on Tyne | | | | 1745 | 575 | 713 |
| Glasgow | | | | 1746 | | 700 |
| York | | | | 1735 | 398 | 495 |
| All Nottingham | | | | 1732 | 284 | 313 |
| Hull | | | | 1732 | 307 $\frac{1}{2}$ | 246 |
| Scarborough | | | | 1732 | 204 | 197 |
| Lincoln | | | | 1732 | 194 | 173 |
| Derby | | | | 1733 | 180 | 158 |
| Northampton | | | | 1745 | 155 | 189 |
| Preston | | | | 1743 | 143 | 161 $\frac{1}{2}$ |
| Huthersfield | 1733 | 183 | 136 | | | |
| Wakefield | 1733 | 196 | 179 | | | |
| Whitby | 1732 | 130 | 115 | | | |
| Howden | 1733 | 57 | 83 | | | |
| Burlington | 1732 | 90 | 84 | | | |
| Middlewich | 1734 | 75 $\frac{1}{2}$ | 72 | | | |
| Kettering | 1745 | 56 | 69 $\frac{1}{2}$ | | | |
| Oundle | 1738 | 54 | 52 | | | |
| Sleaford | 1734 | 51 | 52 | | | |
| Bakewell | 1734 | 24 $\frac{1}{2}$ | 34 | | | |
| Weighton | 1732 | 26 $\frac{1}{2}$ | 31 | | | |
| Patrington | 1732 | 22 $\frac{1}{2}$ | 22 | | | |
| Barotry | 1733 | 17 | 18 | | | |
| Amsterdam | 1736 | | 8844 | | | |
| Vienna | 1728 | | 5743 | | | |
| Berlin | 1729 | | 2717 | | | |
| Copenhagen | 1724 | | 2202 | | | |
| Dantzick | 1725 | 1921 $\frac{1}{2}$ | 1589 $\frac{1}{2}$ | | | |
| Coningsberg | 1721 | | 1586 | | | |
| Breslau | 1725 | 1252 | 1507 | | | |
| Newark on Trent | 1620 | 93 | 88 $\frac{1}{2}$ | 1745 | 91 $\frac{1}{2}$ | 84 $\frac{1}{2}$ |
| Bury near Manchester | 1610 | 120 $\frac{1}{2}$ | 91 $\frac{1}{2}$ | 1746 | 185 | 114 |

1. Here we see the Increase and Decrease of the Inhabitants of several both larger and lesser Towns. 2. Whether they have any Trade, and its Growth, Decay, or Increase. Thus *Liverpool*, in little more than 60 Years, has its yearly Buryings rise from 1 to 14; *Sheffield*, in 170 Years, buries above 7 times the Number; *Leeds*, in 160 Years, buries near 6 times as many; *Nottingham*, in about 120 Years, near 4 times the Number, besides Dissenters buried elsewhere; *Mansfield*, in 170 Years, 4 times as many; *Manchester*, in 160 Years, 3 times as many; *Hallifax*, doubled its Number of Burials in 192 Years, besides the separate Buryings of a great Crowd of several sorts of Dissenters; *Uppingham*, thrice as many in 160 Years; *Ganeborough* triples its Number in 160 Years; *Chesterfield*, doubles in 160; so does *Barnsley*, *Banbury*, and *Bradford*, *Birmingham*, 11 times, besides a great Piece of the Town in *Aston* Parish, whose Register I have not, &c. *Scarborough*, *Burlington*, and *Whitby*, are greatly encreased; *Stockton* is but of Yesterday's beginning; *Rotherham*, *Pickering*, *Ely*, and *Kingsbridge*, are rather on the Decline. 3. We see Towns which have no Sea or Land Trade, just live and languish, without either any considerable Growth or Decay. As *Rotherham*, *Weighton*, *Melton Mowbray*, *Prescod*, *Malton*, *Hartlepool*, *Thorn*, *Selby*, &c. which shews the Consequence of Trade to a Country; and that it can hardly be bought or preserved too dear. *Dublin*, in 60 Years, has encreased its Bury-

ing. from 1600 to 2700, a Bill equal to that of *Berlin*, above 1-5th more than *Copenhagen*, near double that of *Stockholm*, *Kenninberg*, *Breslau*, *Dresden*, or *Dantzick*, above double that of *Edinburg*. 4. Since Trade is the means of enriching and peopling a Nation, then the Rights and Properties of a People must be preserved and secured, for Property is the main Spring of Industry. 5. Not only does this Table give the present State of those Places, as to Inhabitants, but as to Healthiness or Sickneſs, for *Mancheſter* is healthier now than formerly, though their Registers were exactly kept: But though there is a large Number now, whose Chriſtenings are not regiſtered, yet their Births are to their Burials, as 25 to 22. 6. We muſt not take the yearly Totals of this Table for a Standard of the Difference and Proportions between Chriſtenings and Buryings in Cities or great Towns, for ſeveral of theſe Towns here are very ſmall, ſituated well, and in a good Air, free from Luxury. To know the Effects of a bad Air, or Situation, Luxury, Intemperance, &c. we muſt pitch on large Towns, where generally ſeveral or moſt of theſe are found, among fewer or more of the Inhabitants. Thus in the 38 Market Towns in this Table, whereof we have a double Period, in the firſt were baptized yearly 2848, buried 2222; in the ſecond baptized 5985, buried 6027; in the former 3-14ths more were born than were buried, in the latter the buried were more. Allowing more Chriſtenings regiſtered in the
first

first than second Period, yet the Difference between them and Buryings, is much larger for the latter. And though there are more Bastards in Towns than in the Country, from the Peoples more plentiful Eating and Drinking, greater Idleness, Immodesty, Intemperance, and other Incitements and Opportunities to Wantonness; yet in general Country Breeders are more fruitful in proportion to their Numbers, than in large Towns. But from the greater Number of Buryings than Christenings in all rich and populous Towns, it is very obvious that Seminaries of Vices, are only Seminaries of Diseases and Death; and that Uncleanesses and Intemperance, not only lessen, or often hinder Procreation, but are highly injurious to Beings procreated. From this Table we see the different Proportions of Inhabitants of one Town to another.

By comparing the *ante* and post Revolution Registers of Cities, possessed of great Trade or Manufactory, manifestly appears, the Effects of Property and Liberty being in Danger or secured.

The Preservation of Liberty, Property, Humanity, and Trade, all depend on the Preservation, vigorous Defence, and Maintainance of the Protestant Religion and Government; and when this is attacked, or in Danger, it calls for a strenuous Support. Its Enemies have made themselves notorious from their most shocking inhumane Persecutions, Massacres, Butcheries, and Carnages, of all that dare presume to dispute their haughty, sacerdot
humai

humane Dictates; and what dangerous Attempts and Commotions they have made against this Religion, in this Kingdom, in the Reigns of Queen *Mary*, Queen *Elizabeth*, King *James* I. and II. King *William* III. King *George* I. and II. are some of them well known. What barbarous shocking Butcheries did they make of the *Waldenses* and *Albigenses* over all *Europe* for 400 Years, may be seen in their History (published at *London* in 1624, in 4^{to}) collected from their Enemies own Writings. How have they drenched several of the late Protestant Countries in Blood, to the almost depopulating of them, and great Diminution of that Religion? In Queen *Elizabeth's* Time so numerous and successful were the Protestants, that they were a Match for their Enemies. The Protestants in *France* were able to keep a Balance. So powerful were they in *Germany*, that all *Charles* the First's Power and Policy was not able to suppress them. Almost all *Bohemia*, half of *Austria*, *Hungary* and *Moravia*, were Protestants; all the *Saxons*, most of the *Palatinates*; some of the Cantons of *Switzerland*, many of the Subjects of *Bavaria*, *Cologne*, *Wurtzburgh* and *Worms*; the *Vadois* in *Italy*, many in *Spain*, the *Low-Countries*, *Savoy*, *Piedmont*, &c. But where are their Numbers now? are they not in a manner all extirpated or expelled? And if in the Metropolis of this Nation, our Enemies in 30 Years encrease from a few thousands to some hundred thousands, what do they in other Parts of the Nation? And though the Govern-

I

ment

ment may keep them out of important Places of Power and Trust, yet the surprising Numbers and Riches still encreasing, may one Day shake and totally subvert the national Constitution. Surely, if our Enemies must be nourished and cherished in our Bosom, if we are satisfied with the Goodness of our Cause, and Truth of our Religion, it were but common Justice to give a national parliamentary Invitation and Encouragement to our persecuted Brethren abroad, to come and settle with us. Here would be no Merit in us, for it is what we owe in Humanity to the innocent Persecuted, whose Grievances we cannot otherwise redress; it is a Debt due to the common Cause of Christianity, and to our own Security and Preservation, by adding Strength to our own, and subtracting it from our Enemies; or at least we ought to obtain better Terms for our Brethren from their Enemies, when we have it in our Power; as at the Conclusion of the late War before the Peace of *Utrecht*, what warm, commoving, melting Petitions and Addresses were made by the Protestants of *France* (then, and long before, groaning under the bloody Yoke of Persecution) to our Government, for procuring them some Liberty at the ensuing Convention; yet so far from that, that they were at last condemned to perpetual Slavery in the Gallies, till the Accession of his late most gracious Majesty, who redeemed them.

We may observe with Regret, that as the Security of Liberty and Property, begets Trade
and

and Riches, so these are the Inlets and Incitements to Luxury and Debauchery, Intemperance and Licentiousness, which insensibly waste our Health, Strength, and Time; too much Means is exhausted on these, our Usefulness is prevented, our Days are shortened, and our Offspring rendered diseased, sickly, and short-lived, Laws human and divine are trampled on and despised, Religion turned to Ridicule and Mocking, Virtue banished, our future Happiness endangered, if what was formerly esteemed a Rule of Faith and Obedience, be worthy of Regard or Credit.

From establishing and securing of Liberty and Property, we see the great Increase of People (not of only Inmates, but by Accession of Foreigners) even including the common Correctives of Wars foreign and domestic, Diseases Epidemic and Endemic, Plague, Famine, Insects, rainy Seasons and Floods, &c. *Pliny* observes that Plagues generally move westward, and in southern Countries reign mostly in Winter. And I find that most of our Epidemics move westward in this Island, as that of 1528, 43, 4; 57, 8; 70; 1622, 3, 4; 43, 4; 57, 8; 69, 70, 1; 1698, 9; 1723, 41, 2, &c. for I find in the Registers their particular Months of Invasion, Duration, Termination, and Demigration. Hence, for their long Perambulation, they often have taken 2, 3, or 4 Years, from the southmost to the northmost vestigable Points. Plague and Famine went together, from Food being not only scarce but unwholesome. I find Plague
among

among People was often preceded, accompanied or followed by the Rot, Murrain, or other fatal Diseases on Cattle, or other Brutes, whereby their Flesh was either very scarce, or noxious, or both. By great Plagues the lower or servile sort of People are greatly diminished. Famines often follow from Labourers or Husbandmen being exhausted or dead, and not a sufficient Stock left for Husbandry, Tillage, and Encrease: Sometimes War paves the Way to both Plague and Famine.

From the prodigious Increase of several of these Towns within the last 50 Years, we see the great Advantage of securing a Nation's Property and Liberty under a well-regulated and properly limited Monarchy, where the Subjects invade not the Prerogatives of the Crown, nor the Crown incroaches not on the Rights and Liberty of the People, as it is under absolute and tyrannical Princes, whose sole Will is their Law. For first, by securing Property, Trade foreign and domestic, all sorts of useful Industry, is set on foot, encouraged and promoted, both by Sea and Land. The Necessity and Advantage of this appears by comparing the vast Numbers of Dependants to the handful of Independants. But when I speak of the latter, I understand a far less Number than *Davenant* does, who includes all Officers, Persons in liberal Arts and Sciences, Farmers, Shopkeepers, Tradesmen, Handicraftsmen, with all their vast Families and Dependants; all which, in some measure, depend on Trade and Industry, as well as Seamen, Soldiers, Labourers,

bourers, Servants, Cottagers, Paupers, Vagrants, and all their Families and Dependants. Again, not only the Independants add nothing to, but decrease the Wealth of a Nation, but many of the Dependants, as the Aged, Sick, Weak, Beggars, and Vagrants. 2. Security of Property, we see, not only promotes Trade, but Agriculture, or Husbandry; hence Grounds being better or more advantageously improved, we find produce Provisions in Plenty for far greater Crowds of People, than formerly were imagined they could possibly do. 3. By the Security of Property, not only are Lands better cultivated, and greater Multitudes richly provided for, but the Lands become of 3, 4, 5, or 6, nay, in some Places, of 10 times more Value to the Owners, and either bring them in proportionable Rents, at free Cost to them, both to enable them to live suitable to their Ranks, and provide for their Children; or sell at Prices adequate to the present Rent, if not racked on purpose. 4. As Security of the Property is the Landlord's great Advantage (if he has any thing considerable to keep or lose) so to promote proper Industry and Cultivation of Land, it is no less necessary to the Publick, the Owners, and Possessors, that the Tenants or Farmers have their Property, *i. e.* the Product of their Ingenuity and Industry secured to them by proper Leases, for a suitable Term of Years, as 21 at least; and not only Leases, but a Clause of Reversion, or Tenant-Right, for Renewal on reasonable Terms at the Expiration of his present Lease; for it is neither honest

nest nor just in a Landlord, to take the Advantage of a poor Man's racking his Brain, toiling his own, Servants, and Families Carcasses, and expending his All in taking in, and improving his Master's Estate, by digging, draining, watering, fencing, stubbing, marling, expensively manuring, burning, plowing, levelling, earthing, planting, enclosing, building, &c. Nor will any prudent Farmer or Tenant, slave and beggar himself, and ruin his Family, without such a Clause of Reversion, or Tenant-Right, as not to have the Fruit of all his Drudgery and Fortune put up to Cant or Auction of any Man who may bid more in Rent or Fine. Nor is the Landlord always to be the Loser, and reap no Fruit by the Improvement either in Possession or Sale. But there ought to be a just Mean between the Landlord and Tenant, such as this; let such Farms be valued at a yearly Rent or Value, such as they will produce one Year with another; let a third of this go for Rent yearly, another third Part for keeping the Tenant's Family, paying his Servants and Labourers, and his Expences in attending Fairs and Markets for the Sale and Disposal of his Goods, Increase, and Product; and the last third Part to answer the Tenants Casualties and Losses, by bad Seed Times or Harvests, Fires, Floods, Droughts, Great Rains, Barrenness of Land, Death of Cattle, great Sickneses, or Losses by Death in his Family, heavy Taxes in time of War, publick Calamities by Plunder, Robbery, Theft, Plague depopulating a Country,

War,

War destroying Trade, and draining Money out of the Country, and many other Accidents: And thus renew the Leases Fine-free, or renew the Lease at the former Rent, levying a suitable moderate Fine, in proportion to the Improvements, both for Owner and Tenant. No discreet Tenant at Will, or from Year to Year, that regards either himself or Family, will expend his Substance or Fortune in improving another Man's Estate, that, for any thing he knows, he may be obliged to leave next Term, or be at his Landlord's Courtesy, or conscientious Principle, or Honour.

5. As this Security of the Tenant's Property is manifestly to the Advantage of both Tenant and Landlord, so it no less strengthens the Government under which they live: For the Government being not arbitrary, but limited, its Interest is the Peoples, and the Peoples its; so that it is not a giddy, factious, beggarly Mob of Banditti rising up in a Rebellion, or a rakish, discontented, disaffected Bankrupt Landlord, that can so easily delude or deceive an honest industrious People, to run the Risk of, or sacrifice their Interest and Property secured to them by Law; but miserable dependant Wretches, whose poor Property and Security is at the Disposal of their debauched, lewd, extravagant, proud, beggarly Grandees, who may either blind, wheedle, or compel them into their wild anarchical Measures.

6. Thus legally securing the Property of Tenants or Farmers, for a Term or Terms of Years, is not only advantageous to the Tenants, Land-

lords,

lords, and Government, but highly beneficial to publick Society. For without these Improvements, many Places being either ill cultivated, or lying waste, would soon be overstocked with Inhabitants of its own Breed; there would be no room for Incomers or Strangers, there could be no Trade, Manufactories, or Branches of them there; or their Provisions being brought from a great Distance, must come at a vast Expence, that either must be very dear, or People obliged to abandon the Place. The Necessity of such Security given to Tenants, and the Advantage arising to publick Society, by their Improvements made in Husbandry thereby, will manifestly appear by comparing our present Registers with *Doomsday Book*, where you will find, that the People in many Places of *England*, are between 20 and 30 times the Number now, that they were then, even for all the Abatements by War, foreign Aids, Trade, Colonies, and the common Correctives of the Redundance of Mankind. And who at that Time would have imagined, that *England* could not only have fed 25 times as many People as it then contained in some Places, but have supplied its Neighbours in Distress? And for want of this due Security, what large Tracts of Land, yea, what Countries to this Day lie unimproved, nay almost waste in *Britain*? And for want of this Improvement, how many Trades and Busineses lie by unminded, to the great Loss of this Nation? And through want of Improvement, Trade, and Converse with M

kind, are not the Vulgar of the Inhabitants, rude, uncivilized, cruel, barbarous, given to Robbery, Sedition, Rebellion, and Murder, meer two-leg'd Savages? Is such an Act or Law for the Security of the Tenants Property in such Places, for the Increase of Peace, Trade, Riches, People, national Strength, below the Notice or Regard of the Legislator? A Law that would break the Dependency of the Poor upon their proud, turbulent, seditious Masters.

6. The granting the Liberty of the Subjects, add as much to the Strength and Riches of a Nation, as securing the Property; for many that will forfeit their Property, will forfeit their Life and Liberty together. By comparing former with the late Registers, we see Trade and Liberty almost take Breath together; from what small Beginnings, to what a Height of Populoufness and Riches are some of these Towns arrived only by Liberty? Tho' a general Liberty, without some Limitations and Restrictions, is not to be allowed, where there is a Set of People whose Principle naturally and necessarily lead them to wish, seek, conspire, and if any seemingly favourable Opportunity offers, attempt the Subversion of the whole Frame of a national Constitution; and whose Doctrines inspire them with ardent Zeal, savage Cruelty, and hellish Fury, to extirpate all that differ from them, at the Expence of Gratitude, Humanity, Oaths, Vows, and all Ties to the contrary. Liberty and Property give Being and Life to Trade and Industry;

dustry ; these invite a Resort of Strangers, and keep our own People at home, all conspire to make a Nation rich, and dreaded by her Neighbours ; her Enemies fear her, her Neighbours court her Friendship and Alliance. None are Friends to Persecution of the faithful and loyal Subjects of a Prince, but a Set of haughty proud Men ; and every Friend of Persecution, is an Enemy of his Country ; for every Man thereby secreting and screening, or exiling himself, or incarcerated, harrassed, exiled, or put to Death by it, is a dead Loss to a Nation ; every Man deprived of Liberty, incapacitated for Trade or Business, or expelled his Country, is weakening his own Nation, and strengthening the Country of his Sanctuary ; every Man flying to another Country, and following his Trade there, is not only so much present Riches substracted from the Place whence he was exiled, but may carry the Use and Discovery of the Trade or Manufactories of his own Country, to the other, to the irreparable Loss and Damage of his native Nation, and depauperating and depopulating of it.

TABLE EIGHTH.

The Year when the Parish was numbered; Column second, the Number of Years immediately preceding the Date of the first Column, from which we take our Medium; Column third, the Number of Families; Column fourth, the Souls; Column fifth, the yearly Births at a Medium; Column sixth, the Weddings; Column seventh, the Burials annually; Column eighth, whether there are many, few, or no Dissenters in each Parish, specified by the Letters m. f. o. as in Table first.

| | | | | | | | |
|------|----|------|-------|------------------|------------------|------------------|----|
| 1736 | 10 | 3111 | 14105 | 455 | 184 | 428 | m. |
| 1733 | 12 | 728 | 3411 | $112\frac{1}{4}$ | 33 | 117 | f. |
| 1742 | 10 | 570 | 2707 | 68 | $15\frac{1}{2}$ | 61 | f. |
| 1742 | 10 | 290 | 1497 | 43 | 10 | 35 | |
| 1736 | 10 | 357 | 1440 | 51 | 14 | 49 | f. |
| 1733 | 10 | 136 | 610 | 17 | 5 | $18\frac{1}{2}$ | o. |
| | | 5192 | 23770 | $746\frac{1}{2}$ | $261\frac{1}{2}$ | $708\frac{1}{2}$ | |
| 1739 | 18 | 786 | 3361 | $119\frac{1}{2}$ | 35 | 108 | |
| 44 | 14 | 380 | 1710 | 60 | 11 | $42\frac{1}{4}$ | f. |
| 36 | 10 | 279 | 1250 | 40 | $5\frac{1}{2}$ | $29\frac{1}{2}$ | |
| 28 | 10 | 223 | 943 | 26 | 6 | 21 | f. |
| 36 | 14 | 180 | 705 | $25\frac{1}{2}$ | | 22 | o |
| 36 | | 168 | 672 | 18 | | $14\frac{1}{4}$ | |
| 37 | 12 | 111 | 514 | $15\frac{1}{2}$ | $2\frac{1}{2}$ | $10\frac{1}{2}$ | o |
| 39 | 12 | 124 | 538 | 15 | 3 | 13 | o |
| 36 | 12 | 108 | 495 | 16 | 5 | 16 | o |
| 36 | 12 | 100 | 445 | $12\frac{1}{2}$ | 5 | 13 | o |
| 36 | 12 | 95 | 423 | 17 | 2 | $12\frac{1}{2}$ | m. |
| 37 | 12 | 99 | 423 | $12\frac{1}{2}$ | 2 | 9 | o |
| 36 | 12 | 93 | 410 | 9 | 5 | 8 | o |
| 36 | 12 | 90 | 364 | 13 | 3 | 11 | m. |
| 39 | 12 | 90 | 357 | 12 | 3 | 11 | o |
| 33 | 19 | 85 | 351 | $15\frac{1}{2}$ | $2\frac{2}{3}$ | 12 | m. |
| 36 | 12 | 95 | 349 | $10\frac{1}{2}$ | 2 | $10\frac{1}{4}$ | m. |
| 45 | 14 | | 346 | 10 | $3\frac{1}{4}$ | 9 | o |
| 36 | 12 | 86 | 340 | 11 | $2\frac{1}{6}$ | $7\frac{1}{2}$ | o |
| 42 | 12 | 72 | 323 | 9 | 2 | $5\frac{1}{2}$ | o |
| 42 | 12 | 68 | 314 | 10 | $2\frac{1}{2}$ | $7\frac{1}{3}$ | o |
| 36 | 12 | 70 | 298 | $7\frac{1}{2}$ | $4\frac{1}{4}$ | | f. |
| 36 | 10 | 66 | 279 | 10 | 2 | $5\frac{1}{2}$ | |
| 43 | 10 | 58 | 271 | 7 | $4\frac{1}{2}$ | 8 | |
| 36 | 12 | 60 | 264 | 7 | 2 | 5 | |
| 33 | 12 | 56 | 261 | 5 | 1 | $7\frac{1}{4}$ | f. |
| 36 | 12 | 56 | 247 | 11 | $2\frac{1}{2}$ | 11 | o |
| 29 | | 53 | 238 | $8\frac{1}{2}$ | $2\frac{3}{4}$ | $4\frac{1}{2}$ | o |
| | | 3751 | 16486 | 533 | | 434 | |

| | | | | | | | |
|-------|----|------|-------|-----------------|----------------|----------------|----|
| 4736 | 12 | 56 | 246 | 8 | $1\frac{1}{2}$ | 8 | |
| 33 | 34 | 63 | 235 | $10\frac{1}{2}$ | 3 | 11 | o |
| 36 | 12 | 51 | 228 | $8\frac{1}{2}$ | 2 | 5 | o |
| 33 | 14 | 45 | 222 | 8 | 2 | 7 | f. |
| 42 | 12 | 43 | 205 | $4\frac{1}{2}$ | 1 | $4\frac{1}{4}$ | o |
| 37 | 12 | 42 | 192 | $6\frac{1}{2}$ | $1\frac{1}{2}$ | 6 | |
| 42 | 20 | 35 | 184 | 5 | 1 | 4 | |
| 36 | 10 | 40 | 181 | 6 | 3 | $7\frac{1}{2}$ | o |
| 42 | 20 | 35 | 188 | 5 | 1 | 4 | |
| 33 | 10 | 32 | 169 | 6 | $1\frac{1}{2}$ | $4\frac{1}{2}$ | o |
| 33 | 10 | 38 | 167 | $5\frac{1}{2}$ | $1\frac{1}{2}$ | 3 | o |
| 35 | | 36 | 162 | 6 | | 4 | o |
| 45 | 14 | 38 | 160 | 5 | | $3\frac{1}{5}$ | 9 |
| 33 | 10 | 31 | 138 | 5 | $1\frac{1}{2}$ | 5 | |
| 42 | 12 | 30 | 143 | 5 | 1 | $4\frac{1}{2}$ | o |
| 36 | 12 | 32 | 140 | 6 | 1 | $4\frac{1}{2}$ | o |
| 36 | | 32 | 136 | $4\frac{1}{2}$ | 1 | $2\frac{1}{4}$ | o |
| 32 | 12 | 31 | 135 | 6 | 2 | 7 | o |
| 30 | 16 | 25 | 128 | $6\frac{1}{2}$ | | 4 | o |
| 36 | 18 | 29 | 124 | $4\frac{1}{4}$ | | 4 | o |
| 35 | 17 | 26 | 121 | 4 | $2\frac{1}{2}$ | 5 | o |
| 44 | 17 | 23 | 118 | $3\frac{1}{2}$ | | 3 | o |
| 34 | 12 | 21 | 115 | 4 | $1\frac{3}{4}$ | $2\frac{1}{2}$ | o |
| 33 | 12 | 27 | 111 | 4 | 1 | $5\frac{1}{2}$ | o |
| 34 | 10 | 19 | 80 | $2\frac{1}{2}$ | 4 | 1 | |
| 43 | 9 | 16 | 71 | $1\frac{1}{2}$ | | $1\frac{1}{2}$ | o |
| 36 | 12 | 15 | 68 | 2 | 2 | 2 | o |
| Total | | 4662 | 60653 | 676 | | | |

Or to have the same Thing more compendiously and clearly, take an Abstract of this Table thus:

TABLE NINTH.

Yearly.

7 Market-Towns.

| | Famil. | Souls. | Bapt. | Wed. | Buried |
|-------------|--------|--------|-------------------|-------------------|-----------------|
| | 5978 | 27043 | 916 $\frac{1}{2}$ | 234 $\frac{1}{2}$ | 830 |
| A Village | 66 | 279 | $10\frac{1}{2}$ | 2 | $5\frac{1}{2}$ |
| 6 Parishes | 1049 | 4641 | 162 | 49 | 112 |
| 3 Parishes | 783 | 3356 | 120 | $32\frac{1}{2}$ | $92\frac{1}{2}$ |
| 5 Parishes | 317 | 1434 | 41 | $7\frac{1}{2}$ | 28 |
| 4 Parishes | 423 | 1872 | $65\frac{1}{2}$ | 11 | 48 |
| 12 Parishes | 765 | 3382 | $108\frac{1}{2}$ | $20\frac{1}{2}$ | 88 |
| 13 Parishes | 507 | 2173 | 67 | 23 | 61 |
| 10 Parishes | 546 | 2450 | 84 | 20 | 95 |
| 54 Parishes | 4456 | 19607 | 659 | 165 | 51 |

Besides the Market-Towns.

The Uncertainty of those Computers, or random Gueffers, who have reckoned from 7 to 12 Souls each Family, one with another, may occasion several Mistakes (not to say Mischief) as 1. Imposing a dangerous Cheat or Falshood on the Government, in making it believe itself doubly or triply stronger than it really is, not being able to raise 9000 Men, instead of 14, 16, or 24000, by reckoning 7, 8, or 12 Souls to a Family. Hence a weak Prince, or Government, trusting to its computed Numbers, may rashly expose itself to eminent Danger, yea to the total Subversion of the Constitution, and Ruin of both Prince and People, without deliberately recollecting, that his Enemy may be as rich, and his Subjects Families consist of as many Souls. 2. It is a dangerous Imposition upon the People, who being hereby greatly deceived in their Numbers, believe themselves equal to far greater Undertakings than they really are, especially at once, without considering whether their own and Neighbour's Families, taken together, contain 7, 8, or 12 Souls apiece. 3. It is a Deceit put upon the Landlord, who imagines his Estate contains near double or tripple the Number of Souls it really does, or has to supply and provide with Food; therefore he insists upon both a greater Rent and Fine, than the Land will enable the Tenant to pay. 4. It is an Imposition on the Farmer, who looking at his own Children, Servants, and Labourers, like his Landlord, takes it for granted, that Families, one with another, do truly contain

so many Souls ; yet finding Servants much scarcer and dearer than formerly, and his Fines and Rents much raised, he thinks too great a Part of the rising Youth is snatch'd away from Husbandry to Trades. 5. Tradesmen, on the other hand, complain that there are so many People in each Place, and yet so scanty a Number sent out to, or employed in Trades, whilst such a Number would be sufficient for Husbandry ; therefore there must be greater Numbers of idle, useless Hands and Spenders, like Drones in a Hive ; whilst they pay great Wages to their Servants, and high Cessments to the Poor ; forgetting the great Number of Aged, Sick, Lame, Maimed, Diseased, Infants, Orphans, and Widows, to be provided for ; and which is the most expensive Article of all, and grievous to the vertuous Subjects, that drunken, rakish, debauched, strong, healthy Fellows, who are either idle, and will not work when they may have Business ; or do work and get Money, but drink and debauch it away ; and the Parish, yea the poor and industrious and honest Part of it, shall be compelled by Law to maintain the others Families. 6. Our Colonies and Plantations think themselves neglected, because they have no more Exports sent them ; and we, on the other hand, think there are more Exports than can be conveniently spared. From this Mistake, people give their Sons a liberal Education necessary ; hence they are afterwards reduced to Streights and Difficulties, cannot live up to their Profession, Fortune to subsist upon, but must

their Learning. Thus the Cheat affects most Ranks and Buſineſſes.

One could not wiſh for a better Time to take the Number of Families and Souls in any Place, than the laſt 30 Years, wherein though we have had no Plague, yet we have had two Rebellions, *viz.* one in 1715, and one in 1745; four Years of Scarcity, 1727, 28, 40, and 41; ſeven Years War with *France* and *Spain* both by Sea and Land; ſeveral fatal Epidemics, *viz.* 1723, 27, 28, and 41; in 45-6, a fatal Small-pox and Meaſles. Rebellions and foreign Wars gave a Damp to Trade. And in the ſame 30 Years we have had publick Bleſſings ſhowered down upon us, Plenty of the healthieſt Proviſions at reaſonable Rates, a moſt mild and gentle Government, a flouriſhing and encreaſing Royal Family, beyond what we have had ſince the Reformation; ſo that if we have Complaints or Uneaſineſſes, the Cauſes are from our own Prejudices, falſe Principles, miſtaken Intereſt, Envy at our Neighbour's Happineſs, &c.

1. It is not ſo eaſy as ſome may imagine, exactly to adjust the Number of Years in each Place, in which a Number equal to the preſent Inhabitants ſhall be born or buried, except it continue at a ſtand: For where a Town or Village is much on the Increate or Decrease, proper Allowances muſt be made for a juſt yearly Quota, and the Difficulty where to begin to find that Quota, there is no Rule beſide the yearly Total of each Register. If there happens to be a Body of Diſſenters in the Place, which neither baptize, marry, nor bury with

with the Church, the Numbers of their Families and Souls must be omitted in the Table, or they will prevent a just Account. The Numbers in this Table were mostly taken from House to House by People of Veracity. Here we see, 1. What Parishes are most fruitful, since that which is most productive of Children, will bring forth a Number equal to its present Inhabitants, in the fewest Years. Some produce such a Number in little more than 20 Years, whilst others are 40 or 45 about it; so that from 20 to 45 seem to be the Extrems between which Fertility moves. 2. The Proportion of Children born yearly, *com. ann.* to the whole Inhabitants, they being from 1-20th to 1-45th Part of the whole. 3. In what Series of Years a Number equal to the present Inhabitants die, which is from 20 to 50, or, more exactly, from 22 to 46. The Reason why we find so great Odds between different Parishes, otherwise all healthy, is, 1. Some Places depend chiefly on Grazing or Pasturing; these are often in few Hands, and looked after by Servants, which though they add to the Number of Souls, yet being unmarried, are here to-day and gone to-morrow, without either marrying or breeding. 2. Others consist of partly Pasturing, and partly P
ing, the last being but small, requiring Hands to labour it, and such as may go out to other Places. In some Pa
seem to breed fast, and die slowly, when young People are bred up, having neither Work nor Bread, they go to other Places and return. In some Parishes they are really

so that they increase a 3d or 4th. Some Places here appear very sickly, which are truly healthy; for having more Business or Trade than Hands, Incomers are called, and resort from other Parts yearly, which add to the Burials, but not to the Christenings, as *Stoke-Damarel*, a Country Village in *Devonshire*, when in 1692, a Dock-yard was begun by King *William*, which gradually occasioned building a large Town, and so much increased the Number of Inhabitants, that in 1733 they were 3361, since which it is vastly greater. The vast Length of Time for Increase or Decrease in some Places, may also be from some Neglect in registering, or from several Quakers being numbered with the rest, but no Account of them given in. 4. This seems a proper Method to discover the Healthiness or Sickliness, short or long Life of the Inhabitants of any Place; for if all that ought to be, are justly registered; and no considerable Resort or Egress whatever, a Number equal to the present Inhabitants, is buried soonest, seems most unhealthy or intemperate. On the contrary, where there is the longest Series of Years (without great Numbers of Exports) to drop off, must be healthiest. In some Places it may be the Custom to marry very early, there Production goes on quickly; but if later, the Breeders have sooner done, yet have a long Life after, which will lessen the Births; as it will do in a barren Country, where the People live long, and the young Brood, a great Part of it, shear off to other Places for both Bread and Wives. I have added the yearly Births and Deaths in
this

this Table, and what the Proportion of the Married was, both to Born and Buried; tho' it be quite superfluous, for such as are curious, may divide the Number of Souls by the yearly Births and Burials, and they have what they want; and as to the Weddings, they are fully settled in Table seventh; or they may there find what Proportion the annual Marriages bear to the Number of Souls; and having compared the yearly Number of Births, with the Number of Families, they find the Proportion between the first and last, or how many Breeders come annually out of any given Number of Families. 5. In the healthiest Parishes, we see that about 1 of 45 dies yearly, and 1 of 24 or 27 born. 6. Hereby we may find the Quota that yearly goes out of the whole, *com. ann.* (Famine, War, and Plague excepted). 7. By the joint Help of those Tables, we may judge of the Series of Years any Place requires to double its Inhabitants, better than from the groundless Fancies of such as will have the Nation double its Inhabitants in 200, 435, or allowing for War, Plague, and Famine, in 600 Years. 8. So far are some Places from doubling, that without fresh Supplies, they would soon wear out their Inhabitants, the above Tables will shew in what Number of Years. Others scarce sensibly either increase or diminish; others will double, but in very different Terms of Years. 9. Having an exact Register of Churchings, Marriages and Buryings, and observing the Disproportion between them, it is easy to find out near the

TABLE TENTH.

Contains the monthly Christenings (of Males and Females in Column second and third, and the Totals of both Column fourth) of *Sheffield* for 80 Years, of *Castleton* for 34 Years, of *Darley* for 31 Years, of *Wirksworth* for 34 Years, of *Matlock* for 34 Years, of *Manchester* for 11 Years, of *Liverpool* for 13 Years, of *Hallifax* for 60 Years. The fifth Column gives the Number of Weddings in six remote distant Places; Column six, seven, eight, the Males, Females, and Totals buried monthly in *Sheffield* for 184 Years, in *Rotherham* for 140 Years, in *Castleton* for 34 Years, in *Darley* for 31 Years, in *Matlock* for 34 Years, in *Stuntney* for 30 Years (whose Sexes not being distinguished in the Abstract, they are cast into the Totals) in *Hallifax* for 60 Years, *Hatfield* for 155 Years, *Wirksworth* for 34 Years, *Middlewich* for 57 Years, *Heatherleigh* 87 Years, *Ecclesfield* 114 Years, *Bradfield* 173 Years, *Huddersfield* 16 Years, *Glentworth* 44 Years, *Wakefield* 54 Years, *Dronfield* 12 Years, *St. John Baptist*, in the *Isle of Thanet*, 165 Years; *Minster* there, 72 Years, *Chestersfield* 87 Years, *Hearn* 160 Years, *Hope* 42 Years, *Kirkheaton* 29 Years, *Liverpool* and *Manchester* as above in all the monthly Burials of twenty-five distant Places. The Christenings of eight different Places, and the Weddings of six.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-----------|-------|-------|-------|-------|-------|-------|--------|---|
| January | 2676 | 2577 | 5253 | 1158 | 8526 | 8406 | 16932 | |
| February | 2645 | 2522 | 5167 | 1123 | 8168 | 7958 | 16126 | |
| March | 2938 | 2786 | 5724 | 474 | 8895 | 8746 | 17641 | |
| April | 2640 | 2586 | 5226 | 1397 | 8991 | 8679 | 17670 | |
| May | 2471 | 2582 | 5053 | 1499 | 8413 | 8205 | 16618 | |
| June | 2324 | 2270 | 4594 | 1265 | 7119 | 6561 | 13680 | |
| July | 2334 | 2099 | 4433 | 961 | 6586 | 6448 | 13034 | |
| August | 2384 | 2084 | 4468 | 1061 | 6550 | 6245 | 12795 | |
| September | 2300 | 2220 | 4520 | 1140 | 6657 | 6342 | 12999 | |
| October | 2393 | 2194 | 4587 | 1188 | 6935 | 6694 | 13629 | |
| November | 2431 | 2331 | 4762 | 1565 | 7226 | 6848 | 14074 | |
| December | 2443 | 2323 | 4766 | 682 | 7990 | 7668 | 15658 | |
| | 29979 | 28574 | 58553 | 13562 | 92056 | 88800 | 180856 | |

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From this Table of Monthly Births, Weddings and Buryings, *Obs.* 1st. That March is the fruitfullest Month of the twelve by almost 1--11th; and that *July* is the barrenest, the former being to the latter near as 57 to 44. The Proportion of the first five months is to the second five as 13 to 11. The Product of the last two Months of the Year is to the Product of the first two Months, near as 9 to 10. Males are to Females in the first five Months as 133 to 130; in the second five near 11 to 10. In *May* Males are to Females as 24 to 25; but in *July* and *August* the Odds is surprizing in favour of the Males, *viz.* near 23 to 20; and in the last two Months above 24 to 23. Shall we say then that in fruitfullest Months the Disproportion between Sexes born is least, and in the barrenest Months greatest?

Thus we find that the most laborious and toilsome Months prove the best for Impregnation and Conception, *viz.* *April, May, June, July* and *August*; and the Months of the greatest Ease, Repletion, Indolence, and smallest Discharge, are most improper for Procreation, as *October, November, December* and *January*. *Corrol.* Seeing that in the Months of hardest Labour, least Rest, longest Days, and Exercise, People beget 2-13ths more Children than in time of the longest Rest, least Labour, most liberal and invigorating Feeding, freest sensible, but least insensible Discharge, then the most laborious Part of Mankind also most fruitful in proportion to their Numbers; and the most voluptuous, idle, &

nate and luxurious are the barrenest. *Schol.* If it hold in general that the poorest and most laborious Part of Mankind are the fruitfulest, then all Taxes, Civil and Ecclesiastic, laid on the Marriage-Bed, and what pertains to it, or on the common and ordinary Necessaries of Life, fall heaviest on the Poor, and are Discouragements, and prove some Barr in their Marriage. On the contrary, are the idlest Months fittest for generating Males in proportion to the fewer Children begotten, then the former hard Labour and Exercise has strung the Nerves and purified the Blood; hence the labouring Man is more healthy, vigorous, and strong in *October*, *November*, and *December*; besides, the vernal and autumnal Diseases have either cured or carried off the Diseased, Weak, Feeble and Languishing, and left the greatest Part of the Remainder in a more healthy, vigorous Plight. As hard Labour makes the Poor more fruitful, so their Children are generally more vigorous and healthy; as we see plainly by comparing the City and Country Bills; for of the Citizens Children 49 *per Cent.* die under 5 Years old; in Towns 33 to 37; in the Country not above 20 to 25, including all Diseases and Casualties. Or compare we hard-working manufacturing Towns with Country Villages of equal Labour and Situation, but the latter more temperate, keep better and more natural Hours, use less Animal Food, but more vegetable and plain Diet, drink less spirituous fermented Liquors, are chaster, and more faithful to the Marriage-Bed,

Bed, we shall find there again a great Odds in the Loss of their Children, one being scarce 18 *per Cent.* and the other from 33 to 38. This might afford a noble Subject for Meditation on Heaven's liberal and impartial Distributions of temporal Blessings, even on the Poor; for here we see a Chain of Providences and Blessings attends the Virtue, Industry, Chastity, Sobriety, Regularity, poor, but plain Food of poor labouring People; they are less Slaves to the sensual Passion, are more fruitful, their Progeny more vigorous and healthy, have fewer hereditary Diseases, and sooner and more easily overcome the common ones, have stronger Constitutions, and better Stamina, relish a more natural and true Pleasure in Wedlock; they want no Whetters, Pickles, Sauces and Stimulants, or Bracers to procure Appetite and Digestion; they have not their fine covered Table garnish'd with Variety of Dishes and Sauces, but they have a good Stomach, sharp Appetite, true Relish, just Digestion, Distribution and Nutrition; they have their dear Babes not laid up in pompous Tombs, or plain Graves, or but seldom confined to their Beds or their Rooms under Doctors and Nurses, but like Olive Plants set round their Table. They have not much Riches, nor the Effects of them, Uneasiness, Jealousy, Luxury, Voluptuousness, and so much Intemperance. Their low or mean Circumstances free them from that Pest of great or rich Men, artful Flatterers; who are ready to insinuate themselves, and to please, forwa

Appendages, which occasions a Slipperyness, that the best genital Liquor was lost, *re infecta*, or expelled or carried off the small tender Embryo; or that laid in the Way, so that the prolific Aura of the Semen reached not the *Fallopian Tubes* and *Ovaria* to impregnate them. Daily Labour not only wastes the superfluous serous and saline Humours, but braces the Fibres, Membranes and Vessels, and proper Parts of both Sexes for the fuller Preparation and longer Retention of this prolific Humour in the Males, and Reception and due Residence in the Females. Hard Labour, and a promoted Perspiration, not only lessen the Quantity, and mend the Consistence, and takes off not only an useles, but injurious Stimulus at that Time, yet hinders not a prolific one, attended with all pleasurable Satisfaction. Hence it follows: 1st, That tho' Idleness may be a Friend to Venery, yet it is not to Prolificness. Nor, 2dly, does a constant thin watery Diet promise a numerous healthy Progeny, as that Diet is liable to fill the seminal Vesicles with insipid watery Sperm. Nor, 3dly, are high stimulant Food, Drinks or Sauces, Promoters of Fertility, especially before or at the Meridian of Life, seeing they both provoke to immature Acts, and, by the Irritation of the Semen on the Recipient, may procure its Expulsion. 4thly, As Idleness, so Night-revelling and unseasonable Hours, which as they load the Body with unperspired Humours, so they distend the seminal Repositories with inelaborated Matter, which hastens

its Expulsion. 5thly, Hence it's plain that Procreation is often prevented by too frequently repeated Gratifications. This is still more evident from the Decrease of Births in *June, July,* and *August*, the Months answering the idlest and plentifullest Season ; and from the young vertuous Breeders, seldom coming with their first Load within the Year, till they have a little sated themselves ; and the young Husbands put off their pale, lank, thin looks, and somewhat recovered their Batchelor-like Complexion. Would the just Odiousness and Nastyness of the Subject allow it, I could fully and clearly from hence prove, how injurious to Procreation all unnatural or illegal Gratifications are in either Sex, whether before or after Marriage. Thus it is plain, that all too frequent or promiscuous Emission, and all needless, frequent, or profuse Loss of the Semen ; the Slipperyness, Laxness, or Insensibility, or too great Moisture of the Recipient Parts, prevent or protract Conception, and also Stimulants, which provoke an unnatural and unfruitful Desire, without due Repletion of proper Matter (except to dull flegmatic Bodies) and likewise too low and innutritive a Diet answer not the Design of Fertility, for they all taint the Semen, either in Quantity or Quality, make it too much, too little, too watery, acrid, insipid, saline, or stimulant.

Now as to Weddings, these depend entirely on human Choice and Discretion ; they are the Reverse of the Christenings, for the Sr has the greatest Plenty of the last, bu

deficient in the first, partly on account of the ecclesiastical Restraint affecting both City and Country, where Money is scarce to purchase Licences, and partly from other Inconveniencies. The Weddings in *March* are to those of *May* and *December*, as 3 to 13; from which arise some Things not so expedient. For first, few Children come at the Expiration of the first nine Months, but oftener at twelve or thirteen Months end, which may sometimes contribute to the greater Fruitfulness, for then our young Breeders of the last Year's Conjugation, bring their fresh *Quota*; so that they are set six or seven Weeks back by this Restraint. 2dly, Children born in the colder Months, are generally found to be healthier, stronger, and longer-lived, than those born in the hotter, wherefore it would be an Advantage to have them come earlier. 3dly, Tho' a diminished Perspiration in a healthy Person, greater Ease, plentiful Diet, and longer Nights, are not so favourable Circumstances for Generation, yet they befriend amorous Intrigues and conjugal Love; and since these favour Love whilst there is a Restraint on Matrimony, this may prove Temptation to, and Occasion of a previous Engagement. 4thly, Since the Spring is the fruitfulest, as well as fittest Season for Marriage, and our new-married Women seldom come in the Year, (except their Husbands are very chaste) but there are fewest Marriages in the Spring; there is no room to doubt, how far the Denial of Matrimony in *Lent*, is consistent with the Prudence and

and Interest of a trading, warlike, singular People, whose Religion, Trade, and Liberty, render them hated by several of their Neighbours; and whose Numbers, Riches, Trade, and Policy, can only secure these to them. And as Marriage is often solemnized on the Lord's-day, and for Money in *Lent*, and married Men cannot be watched that they cohabit not with their Wives in *Lent*, the Restraint of Marriage, or making it sinful in *Lent*, for want of Money, seems a little dark to all, and hard on the young Lovers. 5thly, From the Decrease of Weddings in Summer, and Increase of them in Winter, we see what Friends an easier Life, a diminished Perspiration, a better Consistence and Stock of animal Fluids, &c. are to Love; or, in a word, how great a Friend a healthy Plethory is to it. Here might be observed the Simularity between Animals and Vegetables.

But we shall consider Polygamy a little, which by many and very eminent learned Men, has, with great Pains and Perspicuity, been attempted to be proven unlawful, upon such Topics as these, *viz.* the Parity of Sexes created at first, preserved at the universal Deluge, and of Sexes now born into the World. But here they forget to consider, 1. That in this Argument they have to deal with Men, who as absolutely deny or pay a due Regard to Divine Revelation. 2. If all the Arguments do not equally hold in all Cases, these are the Case, all their Learning and Reasoning is lost; but only nature remains.

to set the Matter beyond all Dispute: For, 1. It is pretty plain that the Father and Founder of Polygamy, had but a galled, uneasy, terrified Mind or Conscience, as appears from his Speech to his Wives. 2. It is no less evident, that all Men arrived at Puberty, or Years of Discretion, have an undoubted Right to marry, if so disposed or inclined; and this they may plead, not only from the Examples of People of the like Circumstances with themselves, but also from the Equity of the Thing; for the Deity seems to have entituled no particular Set of Men to this Privilege, exclusive of all the rest; but, on the contrary, has conferred on all a Power, proper Parts, and to most an Inclination to conjugal Love. For though it be allowed that Man has granted to him a Power over Beasts, Fowls, Fishes, &c. to kill and feed on them, or convert them to other Uses, (without needless and wanton Cruelty) yet, except in the Breast of Tyrants, one Set or Sort of Men, had never a Power given them over the Lives, Wills, Bodies, or Parts of the Bodies of innocent Infants and Children. But allow of Polygamy for once, then some Men must necessarily be mutilated, or deprived of their Right, or prevented complying with their natural Inclinations, from want of Females; and the greater Part of the Women denied, or come short of the Duty due to them from their Husbands, one Woman being only caressed, and the rest made Slaves to the Pride and extravagant Humours of the Husband and favourite Bride, whose Height is but precarious,

rious, and liable to be kicked down by a new Successor. Some Nations indeed have both practically and verbally answered, that castrating one half, or two Parts of the Males born, as is done with Brutes, is a sufficient Cure for this. True; but let it first be proved, that the supream Being has given some Men Power over, and Disposal of the rest, as Man either has, or assumes over Brutes, this might do for the time; but till then every Man should be allowed the Enjoyment of that undoubted Right to the legal Means of Propagation, Castration being only an arbitrary Invasion of that Property, and Destruction of that Power. This natural personal Right to Marriage, was never disputed or denied to any Man, till about 1200 Years after the Flood, in the Days of *Eli* the High-Priest, that *Semiramis* Queen of *Babylon*, caused the Castration of Men and Boys first to be practised, which Custom has to this Day prevailed in Eastern Countries, both under *Mahometanism* and *Heathenism*, till *Agathocles* King of *Sicily*, as great and as vile a Monster as the other, discovered the Trick of castrating Women, about the 440th Year of *Rome*, in the Reign of *Hezekiah* King of *Judah*. Again, the Power of Castration must be either in the Magistrate, the Parents, or the Person themselves. In the first it cannot be, neither in his own, nor his Subjects account; on his side it is not, for whatever weakens his Strength endangers himself and his Government; it is also contrary to the End of Magistracy, viz. the Defence

Defence of their Subjects and their Right. It cannot be for the Advantage of the Subjects, as it is an Invasion of their natural Right, a lessening of their Strength and Defence. The Parents Duty, under the Prince, is to defend and provide for his own; but he neither was, or is invested with a Power to mutilate them willingly and uselessly. Whilst a Man acts up to his Reason, Self-preservation is the first Dictate of Nature, that he is constantly to observe. It is true, a Prince in case of Rebellion, or other capital Crimes, may commute the Execution of the Sentence of Death for Castration, if he please; but it would appear with too great Levity, and the Criminal not made incapable of further wronging Society, except it were for some Act of Uncleaness, and indeed some deserve this. But supposing Castration to be a Thing indifferent, and legally in the Power of the civil Magistrate, yet who are to be castrated, the Children of the Rich or of the Poor? If of the Rich, this would be the Means of rooting up their Family, the great Idol of their Ambition; if of the Poor, they are the Support of the Rich, they are the Bulk of Armies, Fleets, and Colonies; by them are Trades, Manufactories, Agriculture, &c. carried on, if their Children are incapable of Generation, then the Rich must get Drudges. 2. No Reason can be assigned for *Polygamy* but Lasciviousness, Pride, and Inconstancy: It is so far from answering the End of a numerous Progeny, that this Table shews that the most lascivious Seasons are

are the most impropolific ; and he that had a thousand Wives and Concubines, had but one thick-skulled Son ; and himself being buried and distracted with many Amours, fell early into Dotage ; so dangerous is Polygamy to the Intellect ; and we hinted before, that the more lascivious the less prolific. Pride comes so far short of Fruitfulness, that it is no uncommon thing for proud Tyrants, upon small Disgusts or Suspicions, to plunge their Hands in the Blood of their own Children : And after the Demise of the Tyrant, the most ambitious and powerful of the Sons, often applies the fatal Cord, or other Engine of Death, to the rest of the Males of his Family. As to Inconstancy, the Son of the present Favourite must always be preferred, to the Prejudice, Expulsion, or Death of the rest. 3. The Uncertainty of human Affairs forbid it : How often do Crowns, Kingdoms, Estates, and Riches, change Families as well as Masters ? How often are Male Lines of Families extinct ? He is then weak, foolish, and proud, that promises himself the Perpetuity of his Family, though he calls Houses and Lands after his own Name ; yet the next Family that succeeds may change them again ; or should they never shift, yet this only transmits the Man's Folly and Ambition to Posterity. 4. Policy forbids Polygamy on a double account, for the probable Safety of a Nation depends on the Numbers of its People and Riches ; then the incapacitating a great Number of its Males from lawful Procreation, is inconsistent both

the Increase of People, and native courageous Soldiers. Hence Countries, where Polygamy is used, are the thinnest of Inhabitants, so many of their Males being castrated, and so many Women unmarried. It is also impolitic on the account of Men of public Professions; for there are abundance of Instances of Men of meanest Rank, but of most eminent distinguished useful Parts, of greatest Service in the Army and at the Council Board. 5. Polygamy is inconsistent with the natural, as well as civil Strength of a People; for as it requires too frequent Gratifications of the amorous Passion, few of them will prove prolific, and still fewer productive of strong-bodied Men, from the Inelaboratedness of the too often drained genital Liquor. It is a just Observation, that in general Longevity ceased when Polygamy and Idolatry commenced. 6. As it is inconsistent with both civil and natural Strength, so with the necessary Means of Self-preservation which every Man owes himself, these frequent Dalliances enervating the Vigour both of Body and Mind, whilst each of his Wives may justly sollicite and expect their own due Gratifications. 7. It is inconsistent with the Love and Duty which every Man owes his Wife, whom he is obliged to love, cherish, and provide for suitable to his Station, and cohabit with: But in Polygamy all these Duties must dwindle away, and be divided among several, to the defrauding every one of their Right; for a Number of Wives is only a Number of Slaves to the Ambition of the Husband.

8. It is inconsistent with the Love, Care, and Provision that every Man is obliged to make for his Children; no Man being able equally to provide for several coetaneous Womens Children, according to his Station; every one of the other Wives and their Children coming in Sharers, and Defrauders of the true Wife and her Children. It is also likely to be injurious to the Health as well as Life or Fortune of the lawful Children: It is also inconsistent with the Peace and Tranquillity of a Family, with the Care and Education of the Children. If Castration is lawful in any Case, it is certainly so on Polygamists and Adulterers themselves, who have justly forfeited that Part. 9. The near Number of Males and Females born into the World, makes Polygamy appear a Monster, but especially seeing more Males are born than Females. If Polygamy were at all allowable, it should be that some few Women should have several Husbands at once, there being more Men than Women. 10. The Conception, Abortion, dying before, at, or immediately after the Birth, of so many Males more than Females (a Case which seldom happens among Brutes) is a signal Instance of Providence, that the Number of the first should not exceed the latter so far, that there should not be Wives enough sufficient to breed for them. Castration of Brutes is necessary to prevent the Sterility of the Females, and to prevent, if left uncastrated, the unavoidable Coition of the Females with the Males, which would render them quite barren.

be the Prey of new Masters. If wholly of Strangers, especially of mercenary Officers, the Fate of *Carthage* should admonish all prudent Princes and States of that Danger, as such may always be at the Beck of the highest Bidders; or by refusing to obey the Command of their Hirers, at a critical Juncture, may let slip an Advantage not quickly or easily got again. Or as they are the Tool of Princes, they may betray the Rights and Liberties of the People into his Hands, and make him arbitrary. Nor does the Sale of Post and Places in an Army, portend the Honour or Safety of Prince or People, or great Success in a necessary War: For this puts an effectual Stop to Merit (except to first Purchasers) For when there is no Reward for Courage, Fatigue and Hazards run with Judgment, Conduct and Coolness, they have nothing in view to expose themselves for, it must check their Bravery, make them more indifferent and slack. Sale of Places not only obstructs Merit in such as would deserve it, but opens the Door to the Raw, Ignorant, Unexperienced, and often, in all Respects, Undeserving; only they have Money to purchase, who in a Time of War should come in as Cadets or Volunteers, to qualify them for Service. What can be more discouraging to a brave Veteran, who has behaved with Honour and Reputation in several Campaigns and Sieges, than to see a young, ignorant, undisciplined Fellow, who never was in an Action or Skirmish, or before a Town in his Life, pushed over his Head into a Vacancy, which

which was his Right from Merit, Policy, and Reason to supply; only the other had a little Money, or his Grace, or my Lord, was his Friend: Many a Campaign, Field, City, and some Countries, have been lost, and the Flower of some Armies cut off, by the Ignorance, Male Conduct, or Cowardice of improper Officers. Besides, the Buyers may have been brought up in Voluptuousness, Idleness, Luxury, and Effeminacy, which quite unfit a Man for the Hardships, Fatigues, and Dangers of a Field or Siege, and disqualify him for brave or heroick Actions. Places thus filled up, promise a tedious, expensive, and inglorious War, if not the Loss of a Country. Or supposing only the lowest Offices should be venial, yet this as effectually excludes Merit, as tho' the whole were so, seeing the lowest Entry must be come at by Purchase. Some Excuse might still be pleaded, if the Purchase-Money was for the Use of the Publick, either toward the Payment of the Army, or in part of the Receivers Pay; but being put to neither Use, it is sunk to the Publick, and a Bar to Courage and Bravery. But to return: It is evident that one of the remotest, but surest Steps of an imperious Prince to make himself absolute, is to deter the poorer sort from Marriage, and so lessen the Proportion of his own

And there is no greater, moral, discretion, in castrating a great Males, like the Orientals, or in the Part of the Females in Religious Orders in several *European* Countries, than

the Marriage of the poor Sort, by Imposts laid heavy on the Necessaries of Life, and hindering the Marriage-Bed and its lawful Product; especially whilst many Articles of Luxury are Tax free; and more than the Taxes thus levied, are squandered away. But, it is always the Interest of all Officers to protract a foreign War, as much as that of the People, to desire a quick, safe, and honourable Peace. 3. Marriage of the Poor is hindered by maintaining numerous, useless, standing Armies in time of Peace. 1. Because a Fund to support such Armies, must necessarily arise either from continuing many old heavy Taxes necessary in time of War and Danger, or by laying on and levying new ones, both which must unavoidably fall heavy on the Poor, however easily they may seem taxed. 2. Many of the Army give themselves up to Whoredom and Adulteries, whereby Children are several wicked Ways either artfully prevented, or come undesired, and so mostly neglected and perish in bringing up, their Fathers being both meer Itinerants and poor, and their Mothers being the Wives or Daughters of the poorer sort, they and their Brood are odious, and too burdensome to their Parents or Husbands; and their Parishes mostly give them a too short Allowance, having sufficient of their own to provide for. Not that ever any wise Country should leave itself naked and destitute of all armed Force, whilst its Neighbours constantly keep up Standing Armies, which may either surprize the Defenceless, or endanger its own

Peace

Peace and Security from the Turbulency of its factious, uneasy, contentious Spirits. 4. Marriage is discouraged, by promoting Batchelors, chiefly, to Places and Offices, publick and economical. 5. By squeezing, oppressing, and defrauding the Poor, either because they are poor, and have none to redress their Wrongs, or they want Money to obtain Right and Justice. 6. By not executing the present, or not making, and rigorously executing better Laws against Whoredom, Adultery, Drunkenness and Idleness, these great Funds of national Expences; from which the Poor that have Families are often not exempted. 7. The Want of, or not executing such Laws as may duly punish the Promoters and Practisers of such impious Arts, as prevent Conception by Whoredom. 8. If all Gratifiers of unnatural Lust are not rigorously punished. 9. The too easily compounding with, and passing by the Parents of Bastards, whose Maintainance become another Expence to mean Housekeepers, and too often fatal to the poor, illegitimate, innocent Infants. 10. The Neglect of early instilling into the Minds of Youth, the Evil, Danger, and Consequences of Whoredom, Adultery, &c. and the Honourableness, Usefulness, and Convenience of Marriage. All Means to prevent the Marriage of the Poor are fit Engines of an aspiring illimited Power, to restrain the Increase of People, and keep their Liberties in Bondage, and them in Slavery. 11. Persecution, for differing in mere Forms and Modes of Worship, when both Parties

to the Ruin of the rest, as though they were not their lawful Children, but either Bastards or adopted; hence not a few old Maids, and several kept Mistresses, to which last Course many indiscreet Parents have no small Accession. The Pride, Folly, and ill Judgment of which is fully and clearly proved by the Author of *the Whole Duty of Man*. A very few Parents also who can give their Children competent Fortunes, either give their Children no suitable Education, or one worse than none; but these are so rare in comparison of the other, that they deserve no further Notice.

As to Mortality in its monthly Reign, *com. Annis*, Epidemics excepted, it generally begins its Triumph in *December*, increases its Conquest till it comes to its Zenith of Power in *March*; then declines till *May*. See its monthly Progress in the Table; where we see, that beginning with *December*, the first Six Months are to the last Six, near as 96 to 77. or take them Quarterly, they will be *December*, *January*, *February*, 46923; the next 50010; the third 38272; the last 39341. Though this be the common or ordinary Rate, yet a Mortality may, and often does break in, in any Month, Season, or Quarter, according to the different Constitution, or the Disposition of the Air, to gather, sustain, or breed, blow off, dispel or ventilate any noxious Effluvia from the Earth, Water, Air, Fruits, infected, sick or dead animal Bodies of any kind, or the Attack of an imported or communicated Infection.

fection. On the contrary, any Months or Seasons may be healthy when the Earth, Air, Seasons or Foods contribute to render them such. But this Rule answers not so well in great Cities.

Thus Sicknefs and Death are generally more prevalent in the Spring Months, when the Earth begins to be more loosened and set at Liberty from the Winter's chilling Colds and Exhalations, and the Sun rises higher, approaches nearer a Perpendicular; therefore the subterranean Exhalations ascend more copiously than at other times of the Year. The Country Mortality is greater then, than at the autumnal Equinox, when the Sun recedes from us, and the Cold increasing the Vapours that had hovered above in the Atmosphere during the solar Influence, are more condensed, and begin to fall down on the Earth. Hence, 1. The most heterogeneous and mixed State of the Air is far from being most dangerous and fatal, or *June, July, and August* would be most fatal, seeing the Atmosphere (besides Exhalations from other Bodies) is loaded with the Effluvia of Thousands of Plants and Flowers, which during Winter, and some Part of the Spring and Harvest lie hid under the Earth. 2. Seeing the Difference between the vernal and the autumnal Mortality is so considerable, does it hence follow that the Eruption and Ascension of subterranean Vapours, from their dark, compressed, and less communicating Recesses, is more injurious to animal Bodies, than either their Fluctuation during the Summer, or De-

scent about and after the autumnal Equinox?
 3. As these Vapours seem more dense and
 gross in their Ascent than Descent, and when
 mixed with the Air become more dilated, ex-
 panded, and mixed; and this Island on every
 Side being inclosed by the Sea, Part of them
 will fall as well on the Water as on the Land.
 The Channels of the Deep may also emit their
 Exhalations through the Waters, which from
 the Elasticity and Communication of the At-
 mosphere, may reach the Land also, and mix
 with those of the Earth and Air; yea those of
 distant Countries are by the Winds brought
 hither, and ours by contrary Winds sent to
 them in Exchange. From such a Mixture
 therefore of Exhalations from Sea and Land,
 of sundry Countries and Soils, is it not reason-
 able to expect the Spring should be more
 mortal than the rest of the Year? 4. May not
 these Vapours more sensibly affect us in their
 Ascension than Descent; since in this more
 gross and impure State, floating on the Earth's
 Surface, they are each Moment taken into our
 Bodies with our Food and Air, and perhaps
 some of them penetrate the excretory Ducts
 of the Skin? I say, while we receive them in
 this impure, putrid State, before they reach
 that Region of the Air, where they are rari-
 fied by Heat and Light, agitated and mixed
 with the Atmosphere, are at a just Ballance
 with it and float in it, till they are converted
 into Clouds, and these again pour down on us
 in Rain, Hail, Snow, Dew, &c. 5. This
 seems to intimate, that subterranean Exhala-
 tions

tions are more hurtful to us than vegetable Effluvia; since the Spring, wherein the first chiefly abounds, is more fatal than the Summer, when the last are more copious. Or perhaps the vegetable Effluvia meeting with the Subterranean, from their Agitations, Mixtures, and Collisions may change the first into a more benign, salutiferous, or less dangerous Nature? But when I speak of subterranean Exhalations rising up, I mean only these impure, gross, long, stagnant, putrid Vapours which laid pent up in the Earth, during the Winter's Distance or Absence of the Sun or of hard Frosts; and not of those imaginary and never yet proved (in this Climate) periodic or erratic, metallic, mineral or fossil Vapours, said by some to burst out of the Earth, and cause epidemic Diseases, and a greater and more general Mortality.

Or perhaps the greater Mortality of *March* and *April*, may be, from the Beginning, Rarefaction and Dilatation of the Fluids in our Vessels, like the tinctured Spirits in Thermometers, expanding, rising higher, and taking up more Space in the Tubes as the Sun comes nearer and Weather turns warmer, at the same time the Vessels of our Bodies begin to be more relaxed, whilst yet the Blood retains its denser and stronger Consistence, the Outlets of the Skin not being yet proportionably widened, to give free Vent to the accumulated perspirable Matter, after the cold Winter's bracing. 1. Then if the Blood begins to be rarified in the Vessels, whilst much of its Win-

ter Feculency is yet retained and undepurated, and the Vessels now begin to be more relaxed and dilated; may not this afford Opportunity to some of the animal Juices to go off by the lateral Vessels, both in greater Quantity and grosser Consistence, and so reach and load the capillary Vessels on the Surface of the Body chiefly, and not yet find the excretory Ducts proportionably dilated; may not this be a great Cause of vernal Fevers and their Frequency? 3. May it not follow from this, that most Spring Weather being very unequal, with sudden Heats and Colds going and returning suddenly, frequent Interchanges of Frosts and Thaws, compressed and dilated State of the Air, all Sorts of Weather almost the same Day; may we not expect to find Fevers of some Sorts, especially inflammatory, to prevail most at that time? 4. Do we not in reality find this to be fact from vernal Agues continuing till Harvest, that the Blood's Rarefaction begins to cease, the Vessels to subside, their Cavities to straiten, the Capillaries to recover their Tone, and the excrementitious Parts of the animal Juices to be more plentifully discharged by Urine. On the contrary, autumnal Fevers reign till the Spring, that the Fluids begin to be rarified, and verge toward the State they were in when the Disease first seized, that the Outlets of the Body's Surface are enlarged, Perspiration increased, and the Lensor which lay on the Inside of the small Vessels is diluted, ground down and wasted? Another Proof of this we have in the stated Returns

turns of Heëtics, Coughs, Catarrhs, Hæmorrhages, &c.

From the subterranean Exhalations, Blood's beginning Expansion, and the yet unsettled, uneven State of the Air, may arise a third Cause of the greater Mortality of the Spring, *viz.* the greater Danger that comes from the Continuation and Exacerbation of chronic Diseases, of which that Season is a kind of Criterion. 1. This shews the Indiscretion of such as neglect or delay seeking Help for such Diseases before the Spring, when the Illness is all the while gathering Strength, and riveting itself into, and weakening the Constitution, becomes more obstinate, and the Sick sensibly loses Ground. 2. Since the Spring is so unfavourable to such, then surely Intemperance or any Abuse of the Non-naturals must be highly culpable in them, especially during these Months. 3. Seeing it's probable that the above Causes render this Time more dangerous, from the Blood's greater Quantity and Grossness, which leaves a Lensor on the Vessels; the lessened Springiness of the Solids, from the great Indolence and Inactivity of the Winter and diminished Perspiration, with a scorbutic, febrile, inflammatory Disposition of the Blood. Then during these Months, chiefly, we are directed to keep the Solids braced, and prevent an Accumulation and Cohesion of our Fluids, by suitable Diet, and keeping up a due Perspiration, rather than by multiplied Purgatives, which neither reach so far, nor are so well adapted to several chronic Diseases, or Sud-

rific

rifics which carry off only the thinner Parts, and leave the Body more disposed to catch Colds. But in common Cases Exercise answers all these *Desiderata* at once, where People's Strength will allow it, and no Symptoms forbid it; this neither weakens nor dejects Body nor Appetite, nor spends the Spirits, but renders the first more sprightly, vigorous and healthy, and the second stronger. Hereby these Effluvia are expelled the Body almost as soon as taken in, having not Time to collect or gather in the Body, nor to taint or assimilate the animal Juices to them; and as chronic Diseases have either weakened some *Viscus* or Vessels, or got a Lodgment in the extreme Parts; but as Exercise agitates, breaks and mixes the Humours, and forwards them to their proper Outlets, there to be gradually and insensibly discharged; so it strengthens the weak and relaxed Parts, fortifies them against any sudden and fresh Reception of the like Matter. 4. As on the one hand we are to guard against Intemperance, so neither should we deny ourselves a moderate and seasonable Use of the Comforts of Life, lest we let down the animal Cords too low, lessen the Body's necessary Vigour, impoverish our Juices, and render them too thin, watery or flegmatic, and so generate a Lentor or Viscidity productive of Spring Fevers of a bad Sort, as many of the Poor yearly experience to their Loss; so that a proper Medium is the safest, easiest, and best Road; for out of that, on each hand are Quicksands, Danger, and Death.

Country

Country Bills began to be kept generally and regularly from 1538, the City Bills not sooner than 1592, and were disused again from 95 till 1603; from that the Weekly Bills were published on *Thursday* every Week; and on the *Thursday* before *Christmas-day* the Yearly Bill was published for the 97 Parishes within the Walls and the 16 without the Walls, but within the Liberties. In 1606 was added to them *St. Mary-Savoy*, and *Westminster*; in 29 was first published the Diseases and Casualties of which they died, with the Distinction of the Sexes; in 1626 the Parish of *St. James Dukes-Place* was joined to the rest; as were *Hackney*, *Islington*, *Lambeth*, *Newington*, *Rotherhithe* and *Stepney* in 1636, and *St. Paul's Shadwell* and *Christ-Church* in *Surrey* in 1670; and also *St. James's* and *St. Anne's Westminster* in 85 and 86. In 1726 was added *St. Mary-le-Strand*, and in 29 *St. George's-Hanover-Square*, and in 1730 *Christ-Church Spittlefields*, *St. George's Ratchiff-Highway*, *St. George the Martyr*, and *St. Anne's Limehouse*; in 1731 *St. George's Bloomsbury-Square*, *St. John the Evangelist-Westminster*; in 1733 were taken in *St. John's Southwark*, *St. Luke in Old-Street*. Of the Births and Burials of these Parishes are our present *Mortality* made up; besides which, the ingenious Mr. Maitland's Survey of *London*, discovered, other burying Places in and which were never yet taken in which are yearly buried about from the whole

whole taken together, he will have *London* to be the greatest City in the World, either ancient or modern; larger than *Nineveh*, *Jerusalem*, *Alexandria*, ancient *Rome*, &c. But could he prove his Theorem, I cannot see of what great Service his Demonstration would be to the World; and though *London* with its Suburbs may be justly allowed to be the greatest City in the Western World, yet it follows not therefore that it is the greatest that has been, or is on the Globe; for between 1631 and 33 *Gowro* the Capital of *Bengal*, on the *Ganges*, was computed to contain three times more Families than *London* at present does Souls, viz. 1200000 Families: But allowing the Computation to be wide, yet one 15th Part will make it as large as *London*. As to *Nineveh* we know no more of it for certain, but that it contained 120000 Children, so young that they knew not their right Hand from their left, and their dawning of Reason being so small God was therefore disposed in Mercy to spare that great City for their Sakes: This has been, and is the general Acceptation of these Words; and not that they meant the helpless shiftless Wretches of the Place, incapable either to defend or provide for themselves; for *Jews*, *Christians*, and *Mahometans* agree that such Adults are capable of, and guilty of actual Sin, both of Omission and Commission, and so render themselves obnoxious to Punishment. There are few Children bred up in Cities, especially where there is a brilliant Court or flourishing Trade, where
there

there are Crowds of ingenious polite People ; but they know their right Hand from their left, before they are five Years old, and supposing that in *Nineveh* (as in *London*) 45 *per Cent.* died under 5 Years old, then their Yearly Births must be 46800 to have 120000 of that Age alive at once. But allowing the Mortality to be only 25 *per Cent.* under 5 Years old ; then the Yearly Births in *Nineveh* must be 32000 ; a greater Increase than perhaps he can prove falls to the Share of *London* yearly at a Medium. As to *Jerusalem*, *Josephus* has given us a beautiful Description of the City ; but if the Suburbs of *London* were left out of the Bills of Mortality, they would cut no grand Figure ; nor would it be found an easy Matter to stow up within the Walls of *London*, as many People as perished in the great Carnage made by *Titus's* Army at the Siege of *Jerusalem*, viz. 1100000. As to the Inhabitants of ancient *Rome*, we know little more of it for certainty, but from the several Numberings of the Citizens, which in the last Year of *Augustus's* Reign were 4137000 ; which affords very little Evidence, besides this Remark, that the ancient *Romans* were not afraid that their dear and valuable Blood and Name should be lost by being mixed and blended with Foreigners or Strangers ; they knew that the Naturalization of Strangers was a Master-piece of Policy to make them great, formidable, and flourishing ; therefore they made Abundance of Citizens.

TABLE ELEVENTH.

Of the *London Bills of Mortality* monthly for fifteen Years, viz. from *January 1, 1732, to January 1, 1747.*

| | Baptized | | | Buried | | |
|------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | Males. | Females. | Total. | Males. | Females. | Total. |
| <i>January</i> | 11057 | 10566 | 21623 | 19366 | 19195 | 38561 |
| <i>February</i> | 10094 | 9535 | 19629 | 16559 | 17442 | 34001 |
| <i>March</i> | 10944 | 10318 | 21262 | 17378 | 16643 | 35021 |
| <i>April</i> | 9304 | 8820 | 18124 | 15024 | 15022 | 30046 |
| <i>May</i> | 9485 | 9355 | 18840 | 16944 | 16325 | 33269 |
| <i>June</i> | 8684 | 8469 | 17153 | 13850 | 14021 | 27871 |
| <i>July</i> | 8719 | 8227 | 16946 | 12689 | 12799 | 25488 |
| <i>August</i> | 9769 | 9307 | 19076 | 14934 | 14520 | 29454 |
| <i>September</i> | 9640 | 8752 | 18392 | 15562 | 15644 | 31206 |
| <i>October</i> | 9321 | 8900 | 18221 | 14825 | 15868 | 30693 |
| <i>November</i> | 9285 | 8787 | 18072 | 15345 | 16281 | 31626 |
| <i>December</i> | 9265 | 8305 | 18070 | 15312 | 16287 | 31599 |
| Totals | 115567 | 109841 | 225408 | 187788 | 191047 | 378835 |

It is surprizing to see the great Increase of the City, and its Bills; for compare we their first eight Years, from 1604 to 11, both included, with the eight Years from the Beginning of 1738 to the End of 45; in the former died 64994 (whereof died of the Plague 14752) or 8124 yearly. In the latter eight Years were buried 208822, or 26103 yearly; and add we the yearly 3040 discovered and added by Mr. *Maitland*, the whole annual *Totum*, at a Medium, is 29143; all which can by no Means be allowed to be Citizens, since a great Part of the Nobility and Gentry of good Estates of both Kingdoms, spend the Winter there with most of their Families, either

ther to attend the Parliament, for Company, Conversation, Business, or Education of their Children; many principal Officers civil and military go thither with their Families in Winter; many of the dignified Clergy; many go yearly thither from all Parts of the Country to Apprenticeships, Journeymen, Services, Marriages, for Trade, Places, &c. Many are called to attend the Courts of Justice; great Numbers crowd up to the Infirmaries; several Regiments of Soldiers lie there often from other Parts of the Kingdom; Foreigners from all Parts of *Europe* come there for Trade, many of all which die yearly there; besides natural and accidental Deaths, some are murdered or executed; all which Strangers, Incomers and Lodgers cannot with any Justice or Propriety be reckoned Citizens or Inhabitants, only Sojourners; for these we may discount 1-7th of the yearly Bills, and the Remainder will be 24980, which multiply by 28 (supposing that 1 of 28 dies yearly) then the Product will be 699440. But if 1-7th be thought too large an Allowance, let us reckon all the Incomers and Lodgers Citizens, and make no Discount for them; then supposing 1 of 24 dies yearly, the Product will be 699432, almost 7-10ths of the whole People in the Kingdom of *Ireland* in 1625. This I find to be the Case of some Parishes, the Number of whose Families and Souls were sent me with the Abstracts of their Registers. However unwholsome such Situations are, the City way of Life, in general, is as inconsistent

with Health and long Life. In 1631 all the Inhabitants of the City and Liberties were numbered and found to be 130178; the same Year died in the 97 and 16 Parishes 6156, which multiply by 24 the Product is 147744; in that Year only 274 died of the Plague. Some Country Parishes bury a Number equal to their Inhabitants in 23 Years. One of 24 of the Citizens (including Incomers and Strangers) is as few as can be allowed to die yearly: I could offer some Conjectures for this, but what is said is grounded on Facts; and let it be remembered, that King *Charles* numbered the Citizens in an Age when the City was much healthier than now, the Plague excepted.

Take we the healthiest Time of the City, after Registers were regularly kept, till the Schism broke out in the Church, which was from 1610 to 24, wherein only 884 died of the Plague; in these Years were baptized 107352, buried 122554, or about 1-6th more of the latter than the former. But in the 7 immediately preceding Years, 2-9ths more buried than baptized, one being 45176 the other 57647, whereof 14121 died of the Plague; both these were in a Time when there were few Separatists of the reformed Religion from the established Church; hitherto all Protestants were baptized, married, and buried by the Church. But when it came to an open Rupture, many dissenting Congregations were set up, the publick Registers were neglected or disused, and we are wholly destitute of them

them during all Queen *Elizabeth's* Reign, a Period wherein they would have been of most Service now, and could have been most depended on, both Queen and Nation being sensible of what they had suffered, and apprized of the Danger of Recusants, suppressed them; but on King *James's* coming to the Throne, after the Gunpowder-Plot, he was ever afraid of them, therefore permitted and carested them; then upon the *Spanish* Match, and King *Charles I.* marrying a Princess of *France*, and assisting the *French* by Sea to besiege the Protestants in *Rochel*, and his writing an obliging Letter to the Pope, all contributed to increase their Numbers within the Bills of Mortality especially; for King *James* had suspended the penal Laws against them: the Buryings much exceeded the Christenings ever after, for during the next Vicenary were baptized only 186608, buried 267832, or near as 9 to 13. With the next Vicenary began that fatal and hitherto unrepaired Breach among Protestants; and though from 1648 to 60 Recusants were suppressed, yet the public Registers were so shamefully neglected, that the baptized were to the buried only as 14 to 25 $\frac{1}{2}$. After the Restoration, Protestant Dissenters were chastised and suppressed, Popery for the next 28 Years assumed fresh Spirits and Vigour, having both a King and an Heir apparent, that they knew either to be of their own Religion, or no Enemies to it; during this Time the Baptisms were 344408, the Burials 622608, or almost 34 to 62. Thus stood the Case till the Re-

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volution,

volution, from that to 1714 were baptized 399389, buried 549531, or as 39 to 54. From 1714 to 27, baptized 255182, buried 368877, near 25 to 36, not 1-3d odds; but from that to 45 inclusive were baptized 274584, buried 448062, or 27 to above 44, or near 2-5ths, and this under an eminent Decay of the dissenting Protestant Interest; which gives a clear Proof of the Increase of Popery under the present merciful Reign, far exceeding any that has happened since the Revolution. Thus the Bills of Mortality afford evident Proof of the flourishing State or Decay of the Protestant Religion under the several Reigns, since they began to be kept regularly. Another great Defect in the City Bills, is their Want of the Marriages; the Usefulness whereof is sufficiently obvious in the former Part of this Work; nor could I ever hear any good Reason for their Omission, and if we had them they could not be depended on, and so of no great Service.

From comparing the 15 Years in this Table with the 11 first Years of *Graunt's* Table, wherein the Sexes are distinguished, and with *Dr. Arbuthnot's* Table of the Difference of Sexes born, (in the *Phil. Trans.*) In *Graunt's* first Undecade were baptized Males 55137, Females 51217; where the first are to the last near as 14 to 13. In *Dr. Arbuthnot's* Series of 46 Years, viz. from 1664 to 1710, were baptized Males 329742, Females 308644, near 16 to 15: But in our 15 Years, the first are 115567, the last 109841, near 20 to 19.

How

How does the Difference of Sexes dwindle? will they continue to do so? 2. That *January*, the fruitfullest Month, is to *June* the barrenest, near as $2\frac{1}{2}$ to 17; the Fertility of *January* being owing either to the ecclesiastic Interdict being taken off the Marriage-Bed at *Easter*; or to the religious Abstinence and other *Lent* Severities, whereby the *City Ladies* have reduced their Bodies to a more impregnable State; or because in *Lent*, *Plays*, *Balls*, *Assemblies*, *Masquerades*, and other Occasions of Night Revellings and *Intrigues*, happen not to be quite so fashionable as in Winter. 3. That as *January* is the fruitfullest, so in *September* seems to be the greatest Disproportion between the Sexes, Males being to Females near as 96 to 87. 4. As the Number of Males born exceeds that of Females, so the Number of Burials of the last exceeds that of the first, being 19 to $18\frac{1}{2}$, which Difference gives us the Proportion of Males more than Females that export themselves to other Places, and either settle or die elsewhere; as in the Plantations, Settlements, Fleet, Navy, or Army, &c. which in these 15 Years is 3105, for 5726 more Males were baptized than Females; but 3105 more Females are buried than Males. Now 8831 is above $1\text{-}13\text{th}$ of the whole Males christened. Hence Trades and Businesses call for a much larger Supply of Males than Females from the Country, and the Males that die in Town add to the Number but but proportionally subtract from the *Need* of Citizens that die abroad. 5. Con

Excess of Females buried in these 15 Years, beyond Males, with the first Undecade of Major *Graunt's London Table* that has the Sexes distinguished, viz. from 1629 to 39, inclusive, were baptized, Males 55136, buried 66650, Females 51217, buried 60283. Here Males baptized were to Females near as 14 to 13. Males buried near as 10 $\frac{1}{2}$, to Females 9 $\frac{1}{2}$; so that including Incomers, the Overplus of Males buried exceeds that of the baptized, which shews us the small Trade of the City then to what it is now, when including all *Advenæ*, 1-13th more Females in Proportion are buried than were baptized, and every 13th Male Citizen is an Export, besides all Strangers. 6. Compare the Increase of the City from 1732 to 43 inclusive, with this Undecade immediately preceding, in the last were buried 300,184, in the first 301,561, i. e. 1377 odds, or an annual Increase of about 125 Burials at a Medium; which according to the Bills of Mortality, shews the City to be increasing yearly about 3650 Souls, over and above the Number of its Exports; which in the above 11 Years we have shewn to be 8831 Males more than Females, or about 646 yearly; and that the City may yearly send out 646 more of its own Males Product, there must be a necessary annual Addition of 3650 Souls. Add both, and we have a yearly Addition of 18734 Males more than Females; and for the annual Increase of 125 Burials, the yearly Addition of 3650 Souls. Add both and we have a yearly Addition of 22384; or if the yearly Export of 646 continue at a stand add this to the

yearly 3650 fresh Incomers, and it is 4296, absolutely necessary without Increase of Merchandize, Trade, War, Accidents, &c. 7. That this whole Addition must be out of the Increase of the Country, is neither necessary, nor is it true in Fact; for besides these, from all Parts of his Majesty's Dominions, there is a large Resort from other Countries, either for Trade, Security, or Curiosity. In King *Charles II.* Reign, about 100000 *French* Protestants fled to *England* for Protection, and mostly settled here; and since the *Revolution*, what Crowds of *Germans* have come over and fix'd? Yet such Crowds of *Foreigners* are so far from being a Detriment, that they are a great Advantage to a Nation or State, for they substract from the Strength (if not Wealth) of the Country they are come from, and add it to the Country where they settle; they are a great Benefit and Increase to Merchandize, Manufactories, Trade, and Agriculture, as we shall see more after, and of which *Holland* and *England* are pregnant Proofs: But that they may be so, three Things are necessary, 1. That they be not crouded into a Corner by themselves, but scattered up and down among the Natives. 2. That there be Marriages and Intermarriages between them and the Natives. 3. That they be not entrusted with any important Place or Office at home, before the second or third Generation. 4. That they be allowed no publick Policy or Religion, possibly, or that has often known to be manifestly everfive of

the Constitution under which they are sheltered. 8. If *Major Graunt's Words* (P. 41, 42) are true, where he says, *till about the Year 1642, we find the Burials equal with the Christenings, or near thereabout. In the whole Year of 1672, were christened in Paris 18427, buried 17584; which Difference between Christenings and Buryings, was very agreeable with the Difference formerly in the City of London.* If, I say, these Words are true, then *London* was a Place of neither Trade nor Manufactories, nay, scarce a *King's Court*, or a Seat of Justice; for we have seen already, that even small Market-Towns, without either Trade, Manufactory, or Court, or even so much as a Dissenter in them, yet bury more than they christen. But that *London* had then Trade and Manufactories (tho' scarce comparable to what it is now) we prove from his own Tables. For take we the above first Undecade of his Tables, where the Sexes are distinguished, we find 126933 buried, and only 106353 christened; *i. e.* 20580 odds. Take both at a Medium yearly, and the Baptized are about 9661, the Buried near 11531; so that the last is near 2-11ths more than the first. (But the annual Medium of our 15 Years, is annual Christenings 15027, Burials 2553, 15 of the first to 25 of the last.) But suppose it be objected, that in this Undecade, about 15700 died of the Plague; allow it; but here are above 20000 more buried than christened. If we take in his whole first Vicenary, it will not mend the Matter, for in it were baptized 144229, buried

ried 267832, the first being to the last near as 144 to 167 $\frac{1}{4}$. And his second Vicenary is still wider, for in it were baptized 186608, buried 267832, or near as 93 to 133 $\frac{1}{2}$; join both Vicenaries, and they make the Christenings near as 33 to 43 $\frac{1}{2}$; *i. e.* about 1-4th odds. Thus we see what his Equality or superior Number of Christenings to Buryings is. 9. It is plain from the above, that the great Excess of Buryings beyond Christenings, is not from a great Number of Dissenters, the Case with them being different now to what it was in *Graunt's* Time; for though they then buried, but not baptized with the Church, yet now most of them having Burying-Grounds of their own, their Buryings are no more entered in the public Registers than their Christenings: But all Foreigners and Country People going to *London*, are baptized first, and dying there, encrease the Excess of Funerals. We shall also prove elsewhere, that the City itself is much unhealthier now than formerly; there is also a greater Neglect in registering Children, often from some Prejudices of Parents, or their Poverty. 10. The fruitfulest Time seems also very fatal; for as the Births in *January* were to those in *June*, near as 19 to 13 $\frac{1}{2}$, *i. e.* about 1-5th odds, so was the Death of these Months as 38 to 27. 11. The Proportion of Burials between the fataleſt and favourableſt of thoſe Months, taken together *com. ann.* we ſaw above, is near 38 to 25. In the reſt of the Months, Mortality ordinarily moves in an intermediate Space, between its common Ex-
treams.

treams. 12. Whatever the *Autumn* might formerly be, it is not now the fataleſt Season of the Year, nor the healthieſt, ſince in *May*, *June*, and *July*, died 86628; in *January*, *February*, and *March*, 107583; ſo that in general the Spring is moſt mortal. But to ſee which Months are moſt prolific of Males or Females, or to which Sex moſt fatal, if there is any Difference, the Table will diſcover it.

13. From 1732 to 45 incluſive, 5512 more Males were baptized than Females, and 3779 more Females buried than Males; hence 9291 more Male Exports than Females (over and above the great Numbers that flock from all Parts of the Country to the City) into the Army, Fleets, Colonies, Trade, &c. But if we compare Peace and War, we ſhall find what the Colonies and Trade require from 1732 to 38 incluſive. Males buried were 90877, Females 92543, or 1666 more Females buried than Males, in a Time of Peace; but during the laſt eight Years of War, Males buried 102594, Females 107742, or 5152 more Females than Males: So that the Army and Navy have taken near twice the Number of Men in the ſame Time that Plantations and Trade did; as alſo ſince the War begun, there is a ſmall Decrease in the Buryings.

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T A B L E T W E L F T H.

In 26 last Years of the Plague:

| Year. | Baptized. | Buried. | Died of the Plague. | Total. |
|-----------|-----------|---------|------------------------|--------|
| 1604 | 5458 | 4323 | 896 | 5219 |
| 5 | 6504 | 5948 | 444 | 6392 |
| 6 | 6614 | 5796 | 2124 | 7920 |
| 7 | 6582 | 5670 | 2352 | 8022 |
| 8 | 6842 | 6758 | 2262 | 9020 |
| 9 | 6388 | 7545 | 4240 | 11785 |
| 10 | 6785 | 7486 | 1803 | 9289 |
| 11 and 25 | 13997 | 25564 | 36644 | 62208 |
| 30 and 31 | 17839 | 17524 | 1591 | 19115 |
| 36 to 43 | 80443 | 91752 | 19244 | 110996 |
| 44 to 48 | 37109 | 49209 | 9936 | 59145 |
| 1665 | 9767 | 22710 | 68596 | 91306 |
| 66 | 8997 | 10735 | 1998 | 12733 |
| Totals | 213325 | 261020 | 146130 | 407150 |

T A B L E

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TABLE THIRTEENTH.

| 26 Sickly Years. | | | 26 Healthy Years. | | |
|------------------|----------|---------|-------------------|----------|---------|
| Year. | Baptized | Buried. | Year. | Baptized | Buried. |
| 1618 | 7735 | 9614 | 1604 | 5458 | 5219 |
| 20 | 7845 | 9712 | 11 | 7014 | 7343 |
| 23 | 7945 | 11112 | 16 | 7985 | 8072 |
| 24 | 8299 | 12210 | 19 | 8127 | 8009 |
| 32 | 9584 | 9535 | 26 | 6701 | 5734 |
| 34 | 9855 | 10900 | 33 | 9997 | 8392 |
| 49 | 5825 | 10565 | 39 | 10150 | 9862 |
| 52 | 6128 | 12574 | 48 | 6544 | 9894 |
| 54 | 6620 | 13247 | 50 | 5612 | 8764 |
| 56 | 7050 | 13921 | 71 | 12510 | 15729 |
| 58 | 6170 | 14993 | 75 | 11775 | 17244 |
| 61 | 8855 | 19771 | 87 | 14951 | 21460 |
| 70 | 11997 | 20198 | 95 | 13876 | 19047 |
| 74 | 11851 | 21201 | 96 | 14861 | 18638 |
| 81 | 13355 | 23971 | 1700 | 14639 | 19443 |
| 93 | 13632 | 24100 | 2 | 15687 | 19481 |
| 1701 | 15616 | 24071 | 6 | 15369 | 19847 |
| 10 | 14928 | 24620 | 11 | 14706 | 19833 |
| 14 | 17495 | 26569 | 15 | 17234 | 26569 |
| 19 | 18413 | 28347 | 17 | 18475 | 23446 |
| 23 | 19203 | 29197 | 32 | 17788 | 23358 |
| 26 | 18808 | 29647 | 35 | 16873 | 23538 |
| 29 | 17060 | 29722 | 38 | 16060 | 25825 |
| 33 | 17465 | 29233 | 39 | 16181 | 25432 |
| 40 | 15231 | 30811 | 1673 | 11895 | 17504 |
| 41 | 14957 | 32169 | 1680 | 12747 | 21053 |
| Totals | 311922 | 522010 | Totals | 323415 | 418136 |
| Medium | 12000 | 20080 | Medium | 12439 | 16082 |

TABLE

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TABLE FOURTEENTH.

| 21 Fruitful Years. | | 21 Barren Years. | |
|--------------------|---------------------|------------------|---------------------|
| Year. | Baptized | Year. | Baptized |
| 1611 | 7014 | 1604 | 5458 |
| 19 | 8127 | 20 | 7845 |
| 27 | 8408 | 26 | 6701 |
| 29 | 9901 | 28 | 8564 |
| 35 | 10034 | | |
| 42 | 10370 | 34 | 9855 |
| 48 | 6544 | 43 | 9410 |
| 58 | 6170 | 49 | 5825 |
| 63 | 10292 | 59 | 5690 |
| 71 | 12510 | 60 | 6971 |
| 81 | 13355 | 70 | 11997 |
| 93 | 15159 | 82 | 12653 |
| 97 | 15819 | 94 | 13632 |
| 98 | 16052 | 95 | 13876 |
| 1707 | 16066 | 1700 | 14629 |
| 14 | 17495 | 9 | 14706 |
| 23 | 19203 | 13 | 15927 |
| 24 | 19370 | 20 | 17479 |
| 34 | 17630 | 28 | 16652 |
| 36 | 16760 | 35 | 16421 |
| 40 | 15231 | 38 | 16060 |
| | | 42 | 13751 |
| Totals | 271520 | Totals | 244182 |
| Medium | 12929 $\frac{1}{3}$ | Medium | 11627 $\frac{1}{2}$ |

Table

Table 13; which gives us first the *Chriftenings* and *Buryings* of 26 very fickly Years, wherein the Total of *Chriftenings* were 311922, and the *Buryings* 522010; fo that the firft, at an annual *Medium*, is near 12000, the laft 20080, or near 3 to 5. The Number of *Chriftenings* feems to have declined for 20 Years paft, having fallen from above 19000 *per Ann.* to 15, 14; yea, fometimes little above 13000, which is near a third, yet not at all imputable to the *Difsenting Interelt*, for that has long been vifibly dwindling; but at the fame time *Burials* keep rifing from 25 to 32000, which is another Proof that *Difsenters* leffen. To this Table is prefixed the *Chriftenings* and *Buryings* of the laft 26 Years that the *Plague* was more or lefs in *London*; and the firft is 213325, the laft 407150; fo that the firft is to the laft, near as 21 to 40 $\frac{1}{2}$. But in all thefe 26 Years were only three great *Plague* Years, *viz.* 1625, 36, 65, wherein died 168930, baptized 26472, where the firft is to the laft, near as 13 to 2; though in the fickly Years it was about 26 to 16. The *Mortality* of thefe three great *Plague* Years, is to three of the other moft fickly Years (*viz.* 1623, 24, and 58) near as 4 $\frac{1}{2}$ to 1. Here we have alfo 26 of the healthieft Years, wherein were baptized 323415, buried 418136; fo that the firft is to the laft, near as 16 to 20 $\frac{3}{4}$; the *Buryings* of the 26 healthy Years, are to thofe of the 26 fickly Years, near as 209 to 261, *i. e.* about 1-5th odds; for in the firft were buried 418136, in the laft 322010. The *Chriftenings* alfo of the healthy Years,

Years, were to those of the sickly, near as 161 to 156, or little above 1-11th odds; the *Christenings* of the first being 323415, of the last 311922: So in general the healthiest Years are not the barrenest, nor the sickliest the fruit-fullest. If we compare 21 of the most prolific Years with 21 of the most sterile, the first brings 271520, the last 244182, which is about 1-10th odds, though there was 1-5th odds between the Buryings of the healthiest and sickliest Years in general. Sometimes we find the sickliest Years the fruit-fullest, as in 1658, 81, 93, 1714, 23, 40; and the healthiest Years the barrenest, as in 1604, 26, 95, 1700, 38. Sometimes a very fruitful Year is followed by a very mortal and sickly one, as in 1619, 35, 48, 63; and mortal ones often succeeded by very fruitful, as 1610, 18, 20, 24, 27, 38, 63, 71, 1724, 34; as though Nature sought either to prevent, or quickly repair the Loss by Death. In general, the next Year after sickly or mortal ones, is prolific in Proportion to the Breeders left; for many of the weak, sickly, declining Constitutions being cut off, Health returning gives Vigour and Vivacity to the Survivors.

TABLE

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TABLE FIFTEENTH.

For 15 Years, viz. from January 1, 1728, to January 1, 1743, being monthly; and begins with January, and ends with December.

| Died under Years old. | From 2 to 5 | From 5 to 10 | From 10 to 20 | From 20 to 30 | From 30 to 40 | From 40 to 50 | From 50 to 60 | From 60 to 70 | From 70 to 80 | From 80 to 90 | From 90 to 100 | and upwards, Totals. |
|--------------------------|----------------|-----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------------|-------------------------|
| — | 12593 | 2678 | 1306 | 1232 | 3021 | 3576 | 3730 | 3480 | 2625 | 1988 | 1203 | 37682 |
| — | 12550 | 2918 | 1275 | 1139 | 2852 | 3125 | 3409 | 3086 | 2508 | 1997 | 1072 | 36157 |
| — | 12681 | 3254 | 1267 | 1039 | 2905 | 3423 | 3450 | 3823 | 2781 | 1855 | 1002 | 37126 |
| — | 12731 | 3184 | 1168 | 1021 | 2728 | 3247 | 3088 | 2549 | 2107 | 1496 | 775 | 34242 |
| — | 12268 | 3194 | 1269 | 1004 | 2494 | 2991 | 3046 | 2628 | 2174 | 1427 | 768 | 33410 |
| — | 11363 | 3073 | 1239 | 1048 | 2353 | 2597 | 2803 | 2164 | 1726 | 1129 | 595 | 30197 |
| — | 10063 | 2889 | 1195 | 952 | 2261 | 2748 | 2622 | 2259 | 1558 | 1021 | 528 | 28210 |
| — | 12684 | 2897 | 1170 | 926 | 2241 | 2426 | 2755 | 2543 | 1555 | 1049 | 481 | 30829 |
| — | 13563 | 3101 | 1168 | 1081 | 2401 | 2933 | 2850 | 2558 | 1787 | 1212 | 617 | 33375 |
| — | 13832 | 3069 | 1190 | 1080 | 2344 | 3215 | 3125 | 2372 | 2030 | 1439 | 786 | 34590 |
| — | 12010 | 2867 | 1169 | 1097 | 2685 | 3378 | 3255 | 2924 | 2313 | 1511 | 850 | 34181 |
| — | 12310 | 3055 | 1297 | 1136 | 2617 | 3416 | 3609 | 3090 | 2504 | 1876 | 846 | 35952 |
| — | 148657 | 16170 | 14713 | 12755 | 30902 | 37075 | 37742 | 33476 | 25168 | 18000 | 9523 | 405951 |

| The Number of those of all Ages that died yearly for the last 15 Years, taken at a Medium. | | | | | | | | | | | | |
|--|------|-----|-----|------|------|------|------|------|------|-----|-----|-------|
| 9910 | 2411 | 980 | 851 | 2060 | 2471 | 2516 | 2231 | 1677 | 1200 | 634 | 117 | 27058 |

Of which died in 100 taken at a Medium.

| | | | | | | | | | | | | |
|---------------------------------|---|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|-----|
| 36 ⁶ / ₁₀ | 9 | 3 ⁶ / ₁₀ | 3 ² / ₁₀ | 7 ⁶ / ₁₀ | 9 ¹ / ₁₀ | 9 ³ / ₁₀ | 8 ² / ₁₀ | 6 ² / ₁₀ | 4 ⁴ / ₁₀ | 2 ⁴ / ₁₀ | 1 ⁴ / ₁₀ | 100 |
|---------------------------------|---|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|-----|

The Ages of every 100 that died in *Grant's* Time, taken at a Medium, P. 84.

| | | | | | | | | | |
|---------|---------|----------|----------|----------|----------|----------|----------|----------|-------|
| Under 6 | 6 to 16 | 16 to 26 | 26 to 36 | 36 to 46 | 46 to 56 | 56 to 66 | 66 to 76 | 76 to 86 | Total |
| 36 | 24 | 15 | 9 | 6 | 4 | 3 | 2 | 1 | 100 |

Table 15, shews what Havock Mortality has made of all Ages, in every Month from *January 1, 1728, to January 1, 1743, viz. 15 Years.* Where, 1. The superior Mortality of *January, February, and March* occurs a second time, there being about 1-4th more buried in them than in *June, July, and August.* In *September, October, and November* were buried 102146: so that the Spring Mortality exceeds the Autumnal, near as much as the Mortality of sickly Years exceeds that of healthy. 2. We see how many died in every Decade under 90; and how few of every 100 exceed that Age. 3. What Month is in general most fatal to every Age. Thus the Death of Children under 2 Years old in *September and October*, is to that of *June and July* as 27 to 21. The Death of Children from 2 to 5 Years old in *March, April, May, and September*, is to that of *June, July, August, and November*, as 12 to 10. From 5 Years old to 10, the Death in *January, February, March, May, June, and December*, is to that in the other six Months as 19 to 17½. From 10 to 20, *December, January, and February*, are fatalest; *May, July, and August* mildest; Deaths in the first being to those in the last as 17½ to 14. From 20 to 30, *January, February, and March* are more mortal than *June, July, and August*; the first being to the last near as 4 to 3. From 30 to 40, *January, March, November, and December*, are more destructive than *June, July, August, and September*; the first being to the last about as 13 to 10. The

Death

Death of those between 40 and 50 in *January*, *December*, *February*, and *March*, is to that of the same Ages in *June*, *July*, *August*, and *September*, near as 14 to 11. From 50 to 60, *January*, *March*, and *December* are worst, *June*, *July*, and *August* mildest; for the Destruction of the first three Months is to that of the last near about 5 to $3\frac{1}{4}$. From 60 to 70, *December*, *January*, *February*, and *March*, exceed *June*, *July*, *August*, and *September*, about as $41\frac{1}{2}$ does 33. From 70 to 80 the Case is much the same; for the Death of the first 4 Months is to that of the last, as $38\frac{1}{2}$ to 22. From 80 to 90, the Death of *January*, *February*, and *March* exceeds that of *June*, *July*, and *August*, as 4 does 2, or it is double. From 90 and upwards, *December*, *January*, and *February* are more fatal than *August*, *September*, and *October*; the first being to the last near as 33 to $15\frac{1}{2}$.

4. By looking above, we see from what Ages chiefly, Monthly Mortalities do arise; e. g. that of *September* and *October*, from Children under 2 Years old, which yet are the healthiest Months to those above 90 Years old.

5. If we compare the present State of the *London Bills of Mortality*, with what they were 80 or 90 Years ago, in Captain *Graunt's* Time, we shall find they differ pretty much, as appears from the Computation, how many die out of each Hundred born, of all Ages; for then only 36 of each 100 died under 6 Years old, and 24 from 6 to 16 Years, then only 40 of the 100 remained; but now $36\frac{5}{10}$ die under 2 Years old, and 9 more under 5, and scarce 7 more die from 5 to 20 Years old; so that $47\frac{1}{2}$ still survive

survive at 20, which makes a very great odds. So that the State of Mortality is yet more different now, with regard to the several Ages, than it was then. From 16 to 26 Years old he computes 15 *per Cent.* to die; but they are not above 8. From 36 to 46 he allows only 4, but in reality above 9 die in that Decade. From 46 to 56 he computes 3, though we find them above 6. From 66 to 76 he allows only of 2 instead of 5. At the End of 85 Years he finds only 1 alive, we find 3; which Differences must make a very great Variation in the Computation of Annuities for Life. 6. From this Table we justly infer, that the sundry Ages of the present living Inhabitants stand thus in *London*; of every 100, $49\frac{1}{2}$ are under 10 Years old, and only $50\frac{1}{2}$ above it; $46\frac{1}{2}$ above 20, $47\frac{3}{4}$ above 30, above 40, $30\frac{9}{10}$, above 50, $21\frac{1}{2}$, above 60, $13\frac{3}{4}$, above 70, $7\frac{1}{2}$, above 80, $3\frac{1}{2}$, above 90, $1\frac{1}{2}$. Thus we shew the Chances of the Length of human Life. 7. From this Table we see, that near 1-9th Part more die under 2 Years old, than die from 2 to 40 Years old; or very near as many die under 2, as die from 2 to 45 Years old. Again, more die under 5 Years old than from 5 to 53; again, more die between 20 and 30, than in the last 15 Years before, *i. e.* from 5 to 20. 8. Did only 36 of each 100 die under 6 Years of Age, 90 Years ago? and now $45\frac{1}{2}$ die under 5; then see the shocking Effects of our new and delicate Ways of nursing and rearing Children, far more of them are sent into the Country now than formerly; some are denied

nied all Breast, and must be brought up with the Spoon; many must not draw at the Mother's Breast, but must have a strange Nurse, the Cheapness of whose Wages are considered more than the Goodness of her Constitution. Other Dames are too delicate to suffer their Babes to be in the House to offend their Nose and Ear, but must be sent away, no matter whither or to whom? Others must not be allowed a Cradle in the Day, and others not admitted to Bed at Night, &c. by which and other means, near 1-10th of the Citizens are destroyed in their Infancy, more than used to die formerly. 9. By comparing this with the former Table, we find, that though more Males are born than Females, yet far more Females are buried than Males; therefore there are more in *London* of Females above 20 Years old than of Males, by a 6th or 7th Part. Now of every 1000 Souls alive, only 475 are above 20 Years of Age; yet the Number of Exports of Males above Females being above 1-7th Part, there will not remain above 202 Males above 20 Years old: Then with *Graunt*, to draw an Army of 81233 fighting Men out of *London* and *Westminster*, above 20 Years old each; they must then contain 400000 Souls. But here we include all Males above 20 to 100 and upwards. But if from the above 202 you subtract 27, for all above 60, according to the Table, then only 175 fighting Men of all Ranks and Conditions, healthy and diseased, &c. out of every 1000 Souls alive, remain, then to draw out the above Army of
Men

Men from 20 to 60, there must be 464000 Souls alive, including all Sexes, Ages, Ranks, Professions, and Stages of Life, from highest to lowest, from most reverend to most profane. This Part of his Computation is not far wide; but then supposing *London* buries a Number equal to its present Inhabitants in 23 Years, (which in this Place we only suppose) then 3000 such Men between 20 and 60 must be buried yearly; and every 1000 Souls affords only 175 such Men, then the Burials *com. Ann.* must have been 20000. But from 1653 to 63 they exceeded not 13000 one Year with another; even then when Dissenters were buried at the established Church, and consequently had the same Chance as others to be registered. But this happens from reckoning 30 or 32 Years to bury a Number equal to the Inhabitants; but in its proper Place, and upon better Evidence, we have computed its Inhabitants. But supposing *Van Hoey's* late Report to the *States General* be true, that the *French King* could raise 5000000 fighting Men; then including all Ages from 20 to 60, Ranks, Conditions, and Professions, Persons sound and unsound, sick and healthy, according to the Table before us, that King's Dominions must contain 29030000 Souls, which seems less incredible, than to find Funds to pay such an Army; supposing either *Graunt* or *King's* Computation of the People of *England* to be just, either at the *Restoration* or *Revolution*: But supposing *London* contains 699432 Souls in it, only 175 of these *per Mille* being

ing Males between 20 and 60 Years of Age, fit to bear Arms, it can send out Males of that Age, of all Ranks, Qualities, and Conditions, an Army of 87429 fencible Men. But as 60 is too old and crazy, let us take from 16 to 56, and supposing each 1000 People may afford 202 such Men; then the City may raise 141587 such Men, including blind, lame, or otherwise diseased: A vast Army for one City!

TABLE

TABLE SIXTEENTH. Of Diseases and Casualties of Three Okenaries.

| | | | |
|--------------------------|------------------|-------------------|-------------------|
| Abortives and Still-born | 3798 1 of 20 | 3614 1 of 28 1/2 | 4780 1 of 45 1/2 |
| Christians and Infants | 17730 1 of 4 1/2 | 9162 1 of 11 1/2 | 61567 1 of 3 1/2 |
| Convulsions | 2232 1 of 35 | 6584 1 of 15 | 882 1 of 24 1/2 |
| Chin cough | | | |
| Chicken and Swine Pox | 36 1 of 218 1/2 | 121 of 863 1 | 16062 1 of 13 1/2 |
| Fluxes and Small Pox | 2547 1 of 30 1/2 | 6189 1 of 16 1/2 | 1927 1 of 11 1/2 |
| Mesles | 210 1 of 37 1/2 | 399 1 of 259 1/2 | 241 of 8992 1/2 |
| Rath | | | |
| Head-mold Shot, Horse | | | |
| Shoe Head | 113 1 of 69 1/2 | 3162 1 of 32 1/2 | 1106 1 of 195 1/2 |
| Rickets | | 21 of 5178 1/2 | 587 1 of 367 1/2 |
| Scald Heat | | | 161 of 13488 1/2 |
| Sore Mouths, Thrush, and | 282 1 of 278 1/2 | 437 1 of 237 | 701 of 3083 |
| Canker | | | |
| Teething | 3382 1 of 23 1/2 | 7584 1 of 137 1/2 | 11135 1 of 19 1/2 |
| Thrush | 181 1 of 434 1/2 | 1231 of 842 1/2 | 769 1 of 280 1/2 |
| Worms | 179 1 of 439 1/2 | 531 of 1954 1/2 | 97 1 of 222 1/2 |
| | 30690 1 of 2 1/2 | 37320 1 of 2 1/2 | 19902 1 of 2 1/2 |

TABLE Sixteenth, continued.

| | | | | | | |
|--|-------|--------------------------|-------|--------------------------|------------|------------------------------------|
| Died of Diseases common to Children and Adults. } | 10484 | 1 of $4\frac{1}{17}$ | 10466 | 1 of $6\frac{1}{2}$ | 31 4670 | 1 of 3767 $\frac{1}{2}$ 1 of 25 |
| Ague and Fever | 58 | 1 of 826 | 25 | 1 of $2650\frac{1}{13}$ | | |
| Asthma and Pthifick | 23 | 1 of 2083 | 35 | | | |
| Bleach | 3063 | 1 of $15\frac{1}{8}$ | 2314 | 1 of 287 $\frac{1}{2}$ | 93 | 1 of 1255 $\frac{1}{2}$ |
| Bleeding and Hemorrhage | 51 | 1 of $939\frac{1}{2}$ | 140 | 1 of 473 $\frac{1}{2}$ | 150 | 1 of 778 $\frac{1}{2}$ |
| Bloody-flux, Loofeness, and Flux } | 4 | 1 of 11978 $\frac{1}{2}$ | 5 | 1 of 13250 $\frac{1}{2}$ | | |
| Burftings and Ruptures | 192 | 1 of 249 $\frac{1}{2}$ | 961 | 1 of 68 $\frac{1}{2}$ | 2310 | 1 of 50 $\frac{1}{2}$ |
| Calenture | 381 | 1 of 125 $\frac{1}{2}$ | 274 | 1 of 241 $\frac{1}{4}$ | 35650 | 1 of 31 $\frac{1}{2}$ |
| Cholick, Wind, and Iliat | 15513 | 1 of $3\frac{1}{12}$ | 23707 | 1 of 27 $\frac{1}{2}$ | | |
| Cold and Cough | | | | | | |
| Consumptions and Cough | | | | | | |
| Cramp | 2282 | 1 of 21 | 5767 | 1 of $11\frac{1}{2}$ | 8294 | 1 of $14\frac{1}{2}$ |
| Droopy and Tympany | | | | | 12 | 1 of 9732 $\frac{1}{2}$ |
| Dry-Gripes | 48 | 1 of 998 | 22 | 1 of $3011\frac{1}{4}$ | 3 | 1 of 3890 |
| Falling-Sicknefs | 977 | 1 of 49 | 968 | 1 of $68\frac{1}{2}$ | 33461 | 1 of $3\frac{1}{2}$ |
| Fever and Purples | 299 | 1 of $160\frac{1}{2}$ | 381 | 1 of $173\frac{1}{2}$ | 422 | 1 of 276 $\frac{1}{2}$ |
| Gravel, Stones, and Strangury | 6 | 1 of $7985\frac{1}{2}$ | 90 | 1 of $736\frac{1}{2}$ | | |
| Head-ach | 381 | 1 of $125\frac{1}{9}$ | 531 | 1 of $124\frac{1}{2}$ | 1174 | 1 of $101\frac{1}{2}$ |
| Jaundice | 82 | 1 of $584\frac{1}{2}$ | 8 | 1 of $828\frac{1}{2}$ | | |
| Jaw-fallen | | | | | | |
| Inflammation | | | | | | |
| Lethargy | 12 | 1 of $3992\frac{1}{2}$ | 44 | 1 of $1505\frac{1}{2}$ | 309 | 1 of 378 |
| Liver-grown and Spleen | 748 | 1 of $64\frac{1}{8}$ | 346 | 1 of $191\frac{1}{2}$ | 61 | 1 of $1914\frac{1}{2}$ |
| Megrim | 46 | 1 of $1041\frac{1}{2}$ | 51 | 1 of $1299\frac{1}{2}$ | 60 | 1 of $1946\frac{1}{2}$ |
| Mortification | | | | | 1836 | 1 of $63\frac{1}{2}$ |

TABLE SIXTEENTH, continued.

| | | | | | | |
|------------------------------------|-------|------------|-------|------------|-------|-------------|
| Palfy | 159 | 1 of 301½ | 162 | 1 of 409 | 322 | 1 of 362½ |
| Planet-struck | 12000 | 1 of 3½ | 105 | 1 of 631 | 1 | |
| Plague | | | 1535 | 1 of 43½ | | |
| Plague in the Guts | 202 | 1 of 237½ | 114 | 1 of 581½ | 436 | 1 of 267½ |
| Pleurisy | 109 | 1 of 439½ | 107 | 1 of 619½ | 171 | 1 of 683 |
| Quinsey | | | 53 | 1 of 1250½ | 8 | 1 of 14598½ |
| Spleen | 1166 | 1 of 41½ | 1428 | 1 of 46½ | 32 | 1 of 3649½ |
| Surfeit | 23 | 1 of 2083 | 104 | 1 of 637 | 114 | 1 of 1024½ |
| Vomiting or Cholera | 375 | 1 of 1½ | 4974 | 1 of 1½ | 89593 | 1 of 1½ |
| Died of Diseases proper to Adults. | | | | | | |
| Aged | 5458 | 1 of 8½ | 6622 | 1 of 10 | 15630 | 1 of 7½ |
| Bed-ridden | | | | | 78 | 1 of 1497½ |
| Apoplexies and suddenly | 169 | 1 of 283½ | 807 | 1 of 82½ | 1673 | 1 of 69½ |
| Child-bed | 1258 | 1 of 38½ | 1609 | 1 of 41½ | 1929 | 1 of 60½ |
| Diabetes | | | | | 10 | 1 of 11679 |
| Gout | 38 | 1 of 1260½ | 63 | 1 of 1051½ | 398 | 1 of 293½ |
| Grief | 114 | 1 of 420½ | 90 | 1 of 736½ | 78 | 1 of 1497½ |
| Lunatic | 4 | 1 of 1168½ | 80 | 1 of 828½ | 339 | 1 of 344½ |
| Miscarriage | | | | | 21 | 1 of 5561½ |
| Mother, Hysterical and Vapours | 4 | 1 of 11978 | 20 | 1 of 3313 | 1 | |
| Rising of the Lights | 529 | 1 of 90½ | 1581 | 1 of 41½ | 107 | 1 of 1091½ |
| Rheumatism | | | | | 165 | 1 of 707½ |
| Sciatica | 13 | 1 of 3685½ | 2 | 1 of 33128 | 21 | 1 of 58395 |
| Stoppage of the Stomach | 6 | 1 of 7985½ | 1218 | 1 of 54½ | 1356 | 1 of 86½ |
| | 7773 | | 12215 | | 21787 | |

TABLE Sixteenth, continued.

| Died of outward Griefs, as Cancers, Fistula's, Gangrenes, King's-Evil, Leprosy, Swellings and Wens, Itch, St. Anthony's Fire, Sores and Ulcers, broken and bruised Limbs, Impot-hume, cutting for the Stone, &c. | 1312 | 1 of 36½ | 2260 | 1 of 29½ | 1309 | 1 of 89½ |
|--|------|----------|------|----------|------|----------|
| | | | | | | |
| Expired by unnatural Deaths, as by meer Accidents, Broken Limbs, bruised, burnt, or scalded to Death; bit by mad Creatures, drowned by Bathing, out of Boats or otherwise; found dead, or killed; slain by Falls, frightened to Death, murdered, shot, smothered, stabb'd, starved, strangled, poisoned, over-laid, executed, excessive Drinking, hanged themselves, French Pox, &c. | 1311 | 1 of 36½ | 2035 | 1 of 28½ | 4101 | 1 of 28½ |

In this 16th Table of *Diseases* and *Casualties*, we have the Numbers that died during three *Octenaries*, at distant and different Periods. The first begins with 1629, and ends with 1636, and will be a kind of Key to the other two. The second begins with 1653 and ends with 1660. The third with 1734, and ends with 1742; 39 and 43 are omitted to make the Number in each equal. In the first Column of the Table we have the Names of the Diseases, in the 2d the Number that died of each Disease; in the 3d the Proportion that such as die in the first Class, bear to the whole that died in that *Octenary*. After the first Class, or that of Childrens Diseases, the Children buried are not included in the remaining four Classes; but the Sum total that died not of Childrens Diseases, but died of others, is carried through each Article of all the other Classes, and made the constant Dividend of each *Octenary*. The 4th and 5th Columns are the same for the 2d *Octenary*, that the 2d and 3d were for the first. The 6th and 7th Columns are for the 3d *Octenary*, the same as the other two. A strict arithmetical or mathematical Division is not here intended; 1. Because the Proportions being only given in the gross, are much plainer and easier, and come pretty near the Truth. 2. This prevents the Trouble of Fractions, which must have run into Fluxions, without answering any useful Purpose. These Proportions save much Trouble both in explaining and reading.

In this Table the Articles in the common Bills are much transposed, for instead of following the alphabetical Order throughout, the first Class contains the Diseases proper to Children; the 2d those common to Children and grown-up Persons; the 3d those proper to Adults and Aged; the 4th external Diseases; the 5th unnatural or violent Deaths. Here Death is considered either as natural or violent; the first either in Childhood, or in a more advanced State, or in Adults or Aged, and that either in inward or outward Grievs; the last either accidental, as drowned out of Ships or Boats, or by washing or bathing, starved by Hunger or Cold, scalded to Death, overlaid, bitten by Animals, murdered, smothered, bruised, or having their Bones broken; and such other Accidents as depend on Men's Trade and Employment: Or as the Effect of their own Wickedness, as the *French-Pox*, excessive Drinking, &c. or such as fall by their own bloody Hands immediately, or by common Justice. In all Bills or Tables of Casualties and Diseases, some of the Totals are always lost, either from the Diseases of some being concealed from the Searchers, or not returned to the Clerk's-Hall, and overlooked by them, or not fit to be mentioned, as *Fluor albus*, *Lochia*, *Menses nimii*, &c. Thus the Total that died in the first Octenary of our Table is 78604. But in the Table of Christenings and Buryings, we see their Number is 90225. In the 2d Octenary the Number in our Table stands 103571, but in the Table of Buryings it

it is 106960. In the 3d Octenary, the Total of these 8 Years Buryings was 221292, but in this Table it is only 215812. There is a considerable Difference in *Graunt's* sundry Tables for the same Years, for the Table of his annual Casualties taken is one Number, it's another in his Quaternions of the same Years, and a third in his Table of Christenings and Buryings. In the old Table we have *Bleach*, *Calenture*, *Wolf*, (omitted here) *Chrysoms*, *Jaw-fallen*, *Headach*, *Plague in the Guts*, *Plague*, *Shingles*, *Stitch*, *Swine and Chicken-Pox*, *Wen*, *Tissick*, &c. But the new has these that the old wanted, viz. (Asthma, which was Tissick, and therefore joined them in this Table) *Bed-ridden*, *Diabetes*, *Chincough*, *Headmouldshot*, *Inflammation*, *Miscarriage*, *Mortification*, *Rash*, *Rheumatism*, *Morbus Cholera*. Some Names are only changed, as *Mortification* for *Gangrene*, *Blasted* for *Planet-struck*; and some are omitted; others are added, as *Diabetes*, *Rheumatism*, *Rash*, &c.

Obs. First, the Number of *Abortives* so far advanced toward the due Time of Birth, as to deserve Burying and Registering is about 1 of 20; but a great Number of Conceptions being lost before they arrive at that Bulk and Time, we are not to imagine these to be all the Miscarriages that happen. 2. In the 2d, but especially in the last Octenary, the Number of Abortives lessens much, either from their being interred privately, or not at all in the common Burying-Places, and so neither registered nor returned. 3. The old Article of
Chrysoms

Chrysoms and *Infants* seems to be very injudiciously left out, not as it expressed any Disease, but rather the Age of the Infants, *viz.* such as died within the Month, either of unknown Distempers, or such as fall not under our Senses. But *Convulsions* falling under the Senses of the Spectators, were rightly made a separate Article. Hence the present Article of *Convulsions* (besides the real Increase of the Disease) is monstrously swelled beyond its just Bounds, by thrusting into it, all that die within the Month, of Diseases not obvious and certain.

4. Diseases of the first Class seem more peculiar to Children under 5 Years old, (a few excepted, as *Chin-cough*, *Small-Pox*, and *Measles*.)

5. *Abortives* and *Still-born*, are to those born alive at full Time, but die under 5 Years old, near as 1 to $8\frac{1}{2}$ in the first Octenary; and as 1 to $10\frac{1}{3}$ in the 2d, and as 1 to 20 in the 3d; not that Mothers are stronger and more retentive now than formerly, but fewer are registered, and in many Places none are registered at all.

6. Such as in the present Bills are said to die convulsed, or within the Month (exclusive of *Abortive* and *Still-born*) are above $\frac{61}{94}$ of those that die under 5 Years old.

7. Such as outlive the Month have still two fatal Diseases impending their Childhood, *viz.* *Small-Pox* (with which I take in *Chicken-Pox*, *Measles*, and *Rash*) and *Teething*. Such as die of the first, are to the whole born alive at full Time, but die under 5 Years old, as 1 to $9\frac{1}{2}$ in the first Octenary, as 1 to 5 in the second, and as 4 to 21 in the third. The dire Effects
of

of the hot *Regimen* is visible in the second, and I am afraid of the too general Practice of *Bleeding*, (without due Regard to the Air, Season, Age, and Constitution of the Sick) among Children of the middle Rank, and the Vulgar's too liberal Use of *Saffron*, *Diascordium*, *Mithridate*, *Surfeit-Waters*, and the *Tasteaceous Powders*, in the third Octenary: And also to the greater Intemperance, Luxury, Irregularities, and Carelessness of Parents and Nurses. 8. Teething, such as are born alive but die of this, are to the whole that die under 5 Years old in the first and third Octenary, as 1 to $8\frac{1}{2}$; in the second as 1 to $4\frac{1}{2}$. Here is still more visible the destructive Effects of the hot *Regimen* in Teething Fevers. 9. The Numbers that die of Childrens Diseases, or under 5 Years old, in the first Octenary, are about 15 of 39; in the second, 37 of 103; in the third, 39 of 215, or 49 to 107 $\frac{1}{2}$. But had we as exact and full a Register for the second and third Octenaries, as for the first, the Number that dies under 5 Years old would be greater. As the above Vices prevail among Parents, Death proportionally increases its Conquests over their wretched diseased Progeny. What a fatal Time is Infancy and Childhood to young Citizens! If the Difference between the first and last Octenary be so great, in little more than a Century, how few Children are Citizens like to bring up after a few more Centuries? 10. In the last Octenary 99022 died of Children's Disease and in the whole eight Years 100399 die

unde

under 5 Years old. Subtract the first from the last of these, only 1337 remains, which is the Number of all under 5 Years old that died of Diseases of the second Class, or common to Children and Adults, which is not one of 75. This also proves, that not one of 75 Persons above 5 Years old dies of Children's Diseases, and how many Children above 5 Years old die of *Small-Pox*, *Measles*, and *Chin-cough*; so that few Children die of other Diseases in the City. 11. There are some Diseases on the Decline, as though they would wear out, as the *Rickets*, whereof 1 of 32 Children died, in the second Octenary, but in the third scarce one of 367 that die of Children's Diseases, die of that, *Sore Mouths*, *Thrush*, and *Canker*; in the second Octenary, died of this 1 of 237 of all that died of Children's Diseases, but in the third scarce one of 3083 die of it. Agues, whereof one of 40 of the whole that died of Fevers, died; now scarce 1 of 1100 that die of Fevers die of this: This Distemper has at several Times prevailed for a long Series of Years, and has sometimes raged like a Plague. In 1664 they disappeared, and scarce came on the Stage before 78; but from 1720 to 29, they and Remittents afflicted the whole Nation grievously; and now as to their Severity, especially their Mortality, they are extinct, but as they decrease, other Fevers increase. The *Bloody-Flux* made strange Havock formerly, in the first Octenary, when 12 of 91 that died in the second Class, died of it, and in the second Octenary only 1 of 21, but now not
above

above 1 of 963. *Ruptures*, whereof died 1 of 735, of the second Class; then 1 of 356; lastly, 1 of 597. *Falling-Sickness* is fallen from 1 of 786 of the second Class to 1 of 29664. The *Gravel*, *Stone*, and *Strangury* was first 1 of 125, then 1 of 130, now only one of 212 of the second Class. *Lethargy* in the second Octenary was about one of 1130 of the second Class, now 1 of 1468. *Liver-grown* and *Spleen* was 1 of 50, then 1 of 143, now only one of 1493 of the second Class. *Quinsy* was 1 of 344, now 1 of 522. *Cholera Morbus* was 1 of 478, now 1 of 786. For the third Class; they that died in *Childbed*, were at first as 5 to 31; then as 1 of 7, now only one of 11 of that whole Class. *Grief* was 1 of 68 at first, now one of 281. *Rising of the Lights*, whatever it is, was first 1 of 14, then 1 one of 7, now 1 of 203. *Stoppage of the Stomach* was 1 of 10, now 1 of 16. For the fourth Class, such as died of *outward Grievs* and *Sores*, were to the whole that died above 5 Years old, of natural Deaths, in the first Octenary, near as 1 to 38, in the second as 1 to 39, in the third as 1 of 114.

12. As some Diseases are wearing out, so others are gathering fresh Vigour and greater Strength; are both more frequent and fatal, as *Convulsions*, (including *Chrysons* and *Infants*, as in the present Bills) in the second Period they were but 6 of 15 of all the first Class, in the last Octenary above 61 of 94. Were the Cause of this prodigious Increase enquired in-

From the Whole, it appears, 1. That every Age increaseth in Vice and Wickedness, for in the first Octenary, such as were killed accidentally, were to such as procured their own Death, as 5 to 1. In the second as 14 to 5; in the third as 11 to 9, *i. e.* four Times more than in the first. But had we their true Number, the last would far exceed the first Sort of Deaths. 2. That the most beneficial Remedies, or Specifics, in some Diseases, were the Discovery of Chance not Philosophy, as the *Bark* for *Intermittents* and *Remittents*; *Ipecacuanah* and *Rhubarb*. Mr. Maitland's *Inoculation* for the *Small-Pox*, &c. But these Chance Discoveries are vastly improved, made more safe and successful by Philosophy. 3. Since chance Discoveries have lessened the Danger and Mortality of several Diseases, ought not this to call us off from Theories and Philosophy, to a more close Attention to, and Reasoning from Practice and Observations: Observation, I mean, not each Man his own, for young elated Practitioners, and such as have had little to do, have no Fund of Practice to reason from; but they should call in and collect as it were into one System, and digest and methodize all the good Histories of Diseases they can find, from *Hippocrates's* Time to their own, and reason from them; and I will venture to say, that such in general will be more successful and useful Practitioners, than they would be, if Masters of all the sundry Systems of Philosophy, that have been in
Vogue

Vogue from *Æsculapius's* Days to this Time, this would be no difficult Task to prove. Such will not only be greater Masters of the Diagnostic and Prognostic Parts; but he only can tell, *e. g.* when and where extravagant Quantities of the *Bark* will not stave off above one, or almost a few Paroxysms of *Intermittents*, and yet even in that Constitution, how to make it successful. He knows when and where a few small Doses of it, or even a few Salt Draughts alone, will do the Business quickly. When the *Bark* given in any, or different Forms, is little short of *Homicide*. He is not at a Stand to know when and where *Bleeding*, or refraining it, in *Inflammatory*, or other *Fevers*, is certain Death, or Recovery. He knows when one Sort of *Opiate* is beneficial and other Kinds hurtful, or all of them are injurious: He is apprized when the mildest Laxative (as Syrup of stewed *Pruans*) will prove a *Hyper-catharsis*, and even endanger a *Dysentery*; and when the powerfullest Cathartics, as *Scamony* and *Colocinth* in moderate Doses, will scarce operate: He knows when, or what kind of Evacuations are proper, or when to use Alteratives, and of what Sort, whether cold, temperate, or warm, &c. And knowing these from Observation, his Philosophy will quickly suggest the Reason of them, and how and when, to use them to the best Purpose. 4. That the Improvements in Surgery in general, have far out-stripped those in Physick. Several Things have contributed to this:

The first generally falls under the outward Senses, the other under the Intellect only ; which shews Reasoning from Facts to be much better and surer, than from Theories ; the first being from certain Truths, the other from Imagination and Fancy. As Surgery falls more under the external Senses, and so less liable to Deception, so it lies in a narrower Compass than Physick, and depends chiefly on Dexterity of Hand directed by a good Judgment. We find that Men of the greatest Merit in Surgery, though they have generally less Learning, yet they often compensate that by a closer Application to the Study of their own Profession, without jumbling the finite Mind, and mixing Studies of a different Nature from their own, as of the Drammatists, Poets, Classics, Architecture, Politicks, History, Criticks, Logicks, &c. They are also less liable to Theories and false Reasonings, have not that Contempt of the Ancients, nor of Observations built on Practice, improved and directed by the Understanding, and raised to the Pitch of Truth by a long Enquiry into the Effects of Diseases and Medicines. Nor are they so liable to be attached to some one or two favourite Medicines, which they think deserve to be esteemed Panaceas ; either because they found them successful in a few Cases at their first setting out, or from a natural Inclination to extol and ascribe fictitious Virtues to some Medicines, as some do the Bark, others Salt Draughts, or Salt Draughts and Pectoral Decoction,

coction, others Cinnabarines or Mercurials, or the volatile Spirits, or Acids, or testaceous Powders, or Purging and Bleeding, &c. Others again prescribe proper Medicines, but generally in such pitiful Doses, as though they were afraid of Poisoning instead of Curing. Some take in a larger Circle of Medicines, but from some false Idol, (as *Baglivi* terms it) or others may prescribe in such a random, tumultuous Way, as rarely succeeds well. Others may imagine, that keeping steadily to the same Intentions in the same Diseases, at all Times, will be equally successful at all Times, than which nothing is more false: Others have a dextrous Knack in discovering a Smatch of the *Gout*, *Fever*, *Scurvy*, or *Hippo* in all Diseases; others will relish nothing but what is the Product of the Furnace, by Crucible and Retort; or believe nothing but what they see with their own Eyes, or hear with their own Ears, as though all were Liars but they, and thereby give Suspicion that they themselves are such. Some will work all by Evacuations, and none by Alteratives, others exclude Evacuants from any Share, and depend wholly on Alteratives, whilst a third rightly joins both, &c. These are a few of the Impediments that have obstructed the Growth of Physick, a great many more may be seen in the last named ingenious excellent Author. 5. The Improvements in Surgery, seem to hint, that the late minuter Discoveries in Anatomy are not so useful and assistant to the Physician as to the Surgeon. 6. That the

Surgeon has frequent new Lights and Helps given him by Amputation, Incision, and Apertures making in living Bodies, that the Physician wants in the Evisceration and Enterology of dead Bodies. 7. The late great and useful Improvements in Surgery should excite the Emulation of Physicians, to search out other and more successful Methods for the Cure of those Diseases which seem still, from our Table, to increase their virulent, fatal Nature, as *Convulsions, Small-Pox, Fevers, Apoplexies, Consumptions, &c.* And to see how they came by their Attainments. Whether by Theories, or attending to Reasoning on a just History and Effects of Diseases and Medicines. 8. Some Diseases either go and return at some yet unknown Periods, after they have arrived at a certain *Acme*, or they rise to a Height and then quite vanish, as the *Rickets, Leprosy, Bloody-Flux, Lethargy, Diabetes, &c.* 9. When we compare the sundry Totals of different Octenaries, we are not to imagine, either that the City increases proportionably, exclusive of taking new Parishes into the Bills; or that Parishes proportionable to the Increase, are added to the Bills; but it's from both; for only in the last Year of the first Octenary six new Parishes were added, *viz. Hackney, Islington, Lambeth, Newington, Rotherhitb, and Stepney*, whose Buryings we have all the Years of the second Octenary. But what Proportion these Parishes bear to the whole, is impossible to say,

to say, without consulting either Sir *Hans Sloane's* Bills, or applying to the *Clerk's Hall*. 10. In comparing the Bills of fundry Periods to find the State of Health and Diseases, a Series of Years should be taken in that contain various Seasons, Constitutions of the Air, and State of Foods. Thus 1735 and 39 were cold rainy Years, the beginning of 40 the greatest Frost that probably we have had for several Centuries past, for at *Lammas* after, the Earth was still hard frozen a little way under the Surface; and on *Michaelmas-day* our River was frozen over from side to side; 38 and 39 were Years of uncommon Plenty of all Provisions for Man and Beast, producing sufficient (if well managed) for four Years; 41 and 42 were Years of Drought, Dearth, and Scarcity, and probably it must have been so, had not the great Frost happened; for by the two former Years luxuriant Crops, the Earth had in a manner exhausted and impoverished itself by Vegetation. 11. By comparing the Bills of Mortality of different Periods, we not only see the State of Health and Diseases, but the Flourishing or Decay of Trade, the Growth of Riches or Poverty, the Continuance of Liberty and Property, or Invasion of Tyranny, are visible from the Resort or Withdrawing of People from the City, the wide Disproportion between Births and Burials lessening, till like the Country the first come to exceed the last. 12. Not only do the Bills of Mortality discover the physical, civil, and commercial States of the

the City, but the Decay of Virtue and Piety, and Prevalency of Vice and Impiety. 13. Not only would a Table of Diseases continued, give the beginning Increase, Height, and Declination of some Diseases, or their uncertain Returns and Prevalency, but shew us what Illnesses have a greater Affinity to one another, owing their Rise and Progress pretty near to the same Cause; thus Agues, Dropsies, Jaundice, and Abortion, reigned in 1635, 36, 47, 54, 58, 59, 60; purple, spotted, petechial and eruptive Fevers in 1633, 34, 44, 45, 63 and 64; which on the least Communication, made way for the Plague, which like a Spark of Fire in Gunpowder, immediately breaks forth in a dire Mortality, as in 1624, 35, 46, 63, 64, 65. As Pleurifies, Quinsies, Hectics, Coughs, and Catarrhs, pave the way to abundance of Consumptions. 14. Had we separate Numbers of the Christenings and Buryings of the Parishes added at several Times to the Bills of Mortality, since 1629; or rather since so many private Burying-places were used, it would be easier to find out the Increase of People in the City and Suburbs; but what would still be of greatest Service (next to the exact Numbers themselves) is the exact yearly Number of Weddings, seeing all Marriages are only by the Church, Quakers excepted. Though the second Octenary falls during the very greatest Neglect and Disuse of the publick Registers, yet private Burying-places not being come into Fashion, though private Christenings were, we have still one Article left, by which we may dis-

discover pretty near the true Number of Births and Baptisms, viz. the Death of Child-bed Women, which in the first Octenary was 1 of 61, there being 76732 baptized, and 1258 Child-bed Women died, which is about 1 of 61. In the second Octenary were registered, of Christenings 52345, died in Child-bed 1609, which is about 1 of $32\frac{1}{2}$, or 2 of 65; in the third Octenary were 127753 Christenings registered, 1929 Women died in Child-bed, which is about 1 of $66\frac{1}{4}$; in the second Octenary all Buryings were at Church, but not all Christenings; in the third no more Women dying in Child-bed were buried at Church, than were of the Church Communion, and had their Children christened there, therefore the first and third Accounts are right. Now according to the first Octenary, wherein all Christenings and Buryings were duly registered, 1 of 61 Child-bed Women, and 1 of $66\frac{1}{4}$ in the third. Then in the second Octenary, wherein 1609 Women died in Child-bed, multiply this by 61, the Product is 98149, which was at least the real Number of Christenings in that Time. Again, I say that in the first Octenary, though 1600 died of the Plague from the beginning of 1628 to the End of 1635, yet the whole Buryings were 74000 and the Christenings 7774. In the second Octenary, though only 1609 died of the Plague, yet 103472 were buried, therefore, about, or above 100000 were christened, so few were registered. In 1706 and 1707 were baptized in Sweden 663, 17

died in Child-bed, which is above 1 of 40, but here only $7\frac{8}{10}$ ths of the Christenings are registered; for the Weddings these two Years were 192, the Christenings 663, which is not $3\frac{1}{2}$ to each Wedding, but they are ordinarily nearer 4; as from 1629 to 36 inclusive, were 434 Marriages, Christenings 1695. A 7th of 663 is near 95, add both and the Total of Christenings these two Years, will be 758; then 1 of $44\frac{1}{2}$, or 2 of 89 Women died in Child-bed, which gives the different Dangers of Child-bed Women between *London* and *Sheffield*. In *Leipsic* were born in 4 Years 4369 Children, 67 Women died in Child-bed, which is 1 of 64. In several other Places of *Germany*, where for 2550 Births, 43 Women died in Child-bed, which is 1 of near 59. In *Sheffield* 1 of 14 were Chryfoms, of the Baptized 1 of 66 died of Convulsions. Some Years are much more fatal to Child-bed Women than others, for double the Number dies one Year that do another, as in the first Octenary in one Year died 112, in another 130. In 1706 died in *Sheffield* 11, in 1708 only 6. 15. What they call Aged in the Bills of Mortality, is not specified, *Graunt* says 60 or 70; but this is Random Guessing; I therefore took the Totals of the sundry Ages above 50, then those above 60, but both were too great a Number for that Article in our last Octenary, which is 15630. Then I took all above 70, and found them to be 15216, which is only 414 short of the Article; so that all above 69

or

or 70 only are reckoned Aged. In the *Edinburgh* Bills 60 is called Aged. 16. As to the Difference of Burials between the sickliest and healthiest Years, without any Plague, 1735 was the healthiest in the last Octenary, wherein died 23538; and 1741 the sickliest, wherein died 32169; so that the Odds is above $32\frac{1}{6}$ to $23\frac{1}{2}$.

There is a Disease which once in four or five Years has a more general and remarkable Run; of all common Epidemics it attacks most suddenly, unexpectedly, generally makes the shortest Stay, and greatest Havock in a little Time, of weak, declining, consumptive, and asthmatic Constitutions, of the Aged and Children chiefly and mostly; and yet there is but a very small Proportion between the Infected, or such as are seized with it in one Shape or other, and those that die of it. It is also immediately succeeded by as healthy a Time, carrying off chiefly some almost worn-out Constitutions, that would not have survived long had not it come; I mean *Catarrhs*, or *Ephemeras*; they depend immediately on the preceding State of the Air and Weather, and at different Times are found to require various Methods of Cure, according to the late and present Constitution of the Season, which Difference consists chiefly in the Advantage Disadvantage of Bleeding, a Case only resolved by Observation, not Theory. I have annexed a 17th Table, of not only the great universal remarkable ones that have

in *October* 1728, *January* 1733, *October* 1737, *April* 1743, but of the lesser ones which have considerably raised the Bills of Mortality at any other Time, during the last 16 Years; *viz.* from *January* 1, 1728, to *January* 1, 1743; and of the Fever in *October*, *November*, and *December* 1741; which Table, compared with the monthly Bills of Mortality, we see,

1. That this Disease, of all Epidemics common to all Ages and Sexes, comes ofteneft, has the most extensive Spread, and general Infection of all others.
2. Varies most in its Degrees of Mildness and Severity, as from a little Sneezing, Heavy-headedness, an Hour's easy Sweat after a slight Shivering, or an Hour's Running at the Nose, to a high Fever, Delirium, and Death.
3. It differs also in its Manner of Seizure, Symptoms, and Duration.
4. By comparing these with such as happen'd after, we may see which have been most Epidemic and fatal, allowing for the Increase or Decrease of the City.
5. By comparing this Table with Table Fifteenth, we see of what Ages this Disease is most destructive, and so whether it is more sanguine or flegmatic at different Times, by being more pernicious to Youth or Aged.
6. *June*, *July*, and *August*, have been the only Months free from its Attacks these Years, the other nine have had it stirring less or more.
7. We see that as in other Diseases, so in this, the Spring Months are most fatal.
8. Males generally sustain or feel its first and heaviest Seizure, then the Females, but seldom in an equal,

equal, far less in so severe and dangerous a Way. 9. Here we see whether the Disease, at different Seasons of the Year, and different Constitutions of Weather, equally affects the same, or different Ages and Constitutions at different Times. 10. That the City Mortality must be judged of by the Months, not Years; so some Months have near four times as many as others.

T A B L E

TABLE SEVENTEENTH.

| | Under 2 | 2 to 5 | 5 to 10 | See TABLE FIFTEENTH; the Ages here the same. | | | | | | | | Total | |
|-------------------|---------|--------|---------|--|------|------|------|------|------|------|------|-------|-------|
| 1728 <i>Febr.</i> | 1374 | 379 | 153 | 128 | 301 | 327 | 360 | 348 | 281 | 235 | 125 | 31 | 4039 |
| <i>Dec.</i> | 1042 | 243 | 110 | 99 | 239 | 269 | 328 | 255 | 257 | 159 | 98 | 14 | 3113 |
| —29 <i>Sept.</i> | 1529 | 291 | 107 | 90 | 204 | 242 | 202 | 156 | 143 | 105 | 50 | 14 | 3133 |
| <i>Nov.</i> | 939 | 260 | 94 | 105 | 281 | 331 | 350 | 349 | 288 | 192 | 106 | 24 | 3319 |
| <i>Dec.</i> | 1350 | 310 | 144 | 119 | 247 | 309 | 313 | 234 | 227 | 149 | 81 | 19 | 3502 |
| —33 <i>Jan.</i> | 1186 | 252 | 106 | 89 | 263 | 357 | 412 | 343 | 355 | 250 | 225 | 65 | 3903 |
| <i>Feb.</i> | 956 | 215 | 68 | 86 | 195 | 287 | 299 | 248 | 267 | 195 | 143 | 34 | 2993 |
| <i>March</i> | 862 | 160 | 91 | 62 | 136 | 196 | 203 | 156 | 145 | 104 | 79 | 18 | 2212 |
| —37 <i>Sept.</i> | 1406 | 359 | 143 | 128 | 316 | 349 | 338 | 291 | 235 | 132 | 86 | 16 | 3799 |
| —40 <i>Feb.</i> | 900 | 245 | 105 | 107 | 190 | 281 | 306 | 340 | 271 | 244 | 105 | 21 | 3115 |
| <i>March</i> | 1139 | 316 | 313 | 86 | 275 | 365 | 316 | 309 | 240 | 222 | 107 | 15 | 3503 |
| <i>April</i> | 1155 | 313 | 115 | 99 | 189 | 264 | 260 | 261 | 201 | 164 | 81 | 11 | 3113 |
| <i>May</i> | 1522 | 438 | 135 | 137 | 259 | 313 | 338 | 295 | 222 | 220 | 96 | 13 | 3988 |
| —41 <i>Oct.</i> | 1343 | 279 | 133 | 116 | 395 | 438 | 422 | 336 | 249 | 201 | 97 | 18 | 4027 |
| <i>Nov.</i> | 763 | 245 | 62 | 89 | 279 | 364 | 444 | 345 | 220 | 182 | 77 | 12 | 3182 |
| <i>Dec.</i> | 783 | 197 | 81 | 102 | 272 | 382 | 431 | 330 | 211 | 201 | 84 | 22 | 3097 |
| —42 <i>Jan.</i> | 1080 | 278 | 119 | 122 | 359 | 454 | 493 | 383 | 276 | 210 | 105 | 26 | 3905 |
| 1743 <i>April</i> | 1246 | 234 | 164 | 142 | 340 | 404 | 485 | 460 | 474 | 475 | 229 | 42 | 4695 |
| Totals | 20575 | 5014 | 2043 | 1906 | 4741 | 5932 | 6300 | 5439 | 4562 | 3640 | 1971 | 415 | 62538 |

ON THE
DUBLIN BILLS,
 AIR, WEATHER,
 METEORS, &c.

On the DUBLIN BILLS.

MAJOR *Graunt* having taken no Notice of the *Dublin Bills* of Mortality, though the second City in his Majesty's Dominions, an ingenious Author in 1681. has published a small Schedule on them, with three short Tables. The first is a retrograde Table for six straggling Years between 1683 and 1680. wherein he compares them and the *London Bills*: During which Years were baptized yearly in *London* 12280, buried 20028; in *Dublin* 1026, 1644. From which he observes, 1. That the *London Burials* exceed those of *Paris*. 2. That the Births exceed the Burials; and that *London* has

Time, would decrease quite away, were it not supplied out of the Country, where there are about five Births for four Burials; the Proportion of Breeders in the Country being greater than in the City. 3. That the *Dublin* Burials are about a twelfth of the *London* Burials, and about one fifth over; so that the People in *London* seem to be twelve times as many as these of *Dublin*. 4. The Births in *Dublin* are about five eighths of the Burials, which shews that the Proportion between Burials and Births in *London* and *Dublin* are alike; and that the Accounts are kept alike, and consequently are likely to be true: which if so, then, 5. Births are the best Way (till purposely the Numbers of the People are exactly taken) whereby to judge of the Increase and Decrease of People; that of Burials being subject to more Contingencies and Variety of Causes. 6. If Births be as yet the Measure of the People, and that the Births are as 5 to 8, then eight fifths of the Births, taken at a Medium, is the Number of the Burials, where the Year was not uncommonly sickly or healthy. 7. In the *London* Bills, every Year the Number of Males born is greater than of Females.

The second Table gives us the yearly *Dublin* Births and Burials for fifteen Years; the former whereof is 14765, the Medium 984; the latter 24199, the Medium is 1613. These he divides into Ternaries, or every three Years; and then he gives the Medium of these fifteen Years, then of the above six; which shews that there were also fewer People, though both the

the fifteen and six Years were in the same Time, viz. between 166 and 1680. 2. He makes some Remarks on his Ternaries; and, 3. That probably as the People in *Dublin* have increased, so have the Houses.

His third Table gives the Number of Houses, or Families and Hearths, in each of the thirteen Parishes of *Dublin*, and the Mean of each Parish's Births and Burials in 1670, 71, and 72. The Houses, or Families, he finds to be 4000 in 1681; the Hearths 18156; the annual Births 1013; the Burials 1696: From which he gives us the Order and Proportion of those Parishes to one another, and what it should be. 2d, If each Family consists of eight Souls, as there were 4000 Families or Houses, then there were 32000 Souls in *Dublin*, which was but half of what most Men imagined; and that, besides the Royal Regiment, only one sixth Part were able to bear Arms. 3d, That without knowing the true Number of the People, the Use of keeping Bills of Births and Burials is greatly impaired: for to deduce their Number from Births and Burials by laborious Conjectures and Calculations, may be ingenious, but very preposterous. 4th, He tells us who are proper, easily and at a small Expence, to take an Account of the whole People, and their several Ages, Sexes, Titles, Marriages, Trades, Religion, &c. Then he gives us a Scheme of making up a Weekly and Quarterly Bill of Mortality, with the Number, Ages and Diseases, or Accidents, of all that died out of each Parish in that Time, in four other Tables, with some of their

Uses and Advantages. But our Author being deficient in Materials, and a longer Series of Years to draw his Inferences from, has made some too hasty Conclusions which will not hold.

In 1682. there raged a spotted Fever in *Dublin*; in that Year died 2262, a very high Bill: yet in 84. Sir *William Petty* proved before the Royal Society, that even adding that to the *Paris* Bills, they were yet short of the *London* Yearly Bills, taken at a Medium.

In Numb. 261. of the *Philos. Transf.* we have an Account of the Number of People in the Counties of *Ardmogh*, *Lowth*, and *Meath*, in *Jan.* 1695-6. and in the City of *Dublin*. In *Dublin* were 40508 Souls. The Number of Watermen in that whole Kingdom, the same Year, were 4424, 2654 whereof were Papists; 688 of the Watermen belonged to *Dublin*. In 1698. an exact Account was taken of all the *Romish* Clergy in *Ireland*; there were Regulars 495, Seculars 872; from *Dublin*, *Gallway*, *Cork* and *Waterford*, 424 Regulars were by Act of Parliament shipt off for foreign Parts, their Passage and Provision being paid for by the Government.

After this, I meet with no other public Account or Notice of the *Dublin* Bills, till 1747. that the worthy and ingenious Dr. *Rutty* there procured me an annual Abstract of them from 1715. to 1746. only the Births and Burials of 1739. are wanting; because before that Year, they ended their Year with *March* the 24th; but since then with *December* 25. There wants

wants also the Christenings of 1732, 37, and 38. Nor is it specified in these three Years the particular Numbers that died above and under sixteen Years of Age, as is done in all the other Years. But these Chasms I have supplied, by taking them at proper Mediums. Neither the old nor new Bills distinguish the Sexes of Baptized and Buried, like other Bills; nor have either of them the Marriages, which is a great Want. In these 32 Years, *viz.* from 1715. to 46. were baptized 43940, or 1373 at a yearly Medium; buried 76985, or 2400 annually. To these is added the exact Numbers that died above and below sixteen Years old; the former being reckoned Adults and Communicants, the latter Children. The Dr. says, that the whole Account of Christenings and Buryings is considerably short of the Truth, because of the great Number of *Roman Catholics* there, who christen, and sometimes bury, by themselves; therefore the Proportion of Burials is too great for the Christenings. In 1745. the Number of Families in *Dublin* was taken exactly, and laid before the Lord Mayor; it was 9214, whereof were Protestants 5639, Papiests 3575, or near 14 to 9. But he says the Houses in *Dublin* are so thronged, that sometimes several Families are crowded into a Room.

Tab. XXIII.

| | Baptized | Buried |
|-----------------|----------|--------|
| From 1666 to 72 | 7016 | 11610 |
| 1674 to 80 | 6816 | 11058 |
| 1715 to 29 | 20033 | 42229 |
| 1730 to 46 | 24281 | 38137 |

| | Buried above 16 Years old | Under 16 |
|-----------------|---------------------------|----------|
| From 1715 to 29 | 20455 | 21775 |
| 1730 to 46 | 20814 | 16529 |

| | Baptized | Buried |
|-------------------------------------|----------|--------|
| In 1671, 74, 80, three sickly Years | 3041 | 5906 |
| 1676, 77, 79, three healthy Years | 2910 | 4147 |
| 1717, 22, 29, 40, 41, sickly Years | 7269 | 15299 |
| 1734, 35, 43, 44, 46, healthy Years | 7312 | 10152 |
| 1727, 28, 33, 40, fruitful Years | 6774 | 11416 |
| 1730, 36, 41, 44, barren Years | 5425 | 8898 |

In this short Table, and the following Observations, the first and last mentioned Years are always included. *Obs.* 1st. From 1672. to 80. the City seems to have been on the Decrease, as we see from the yearly Medium of Births and Burials; but cannot say how long it continued so; for in 1695. we shall quickly see it was not only recovered, but much increased. 2d. In the three fatal Years of the first two Septennaries, the Christenings were to the Buryings as 30 to 59. But in the three healthy Years, the former were to the latter as 14 to 20.----- 3d. The Burials of the above three sickly Years, are to these in the healthy

as

as 59 to 41, the Christenings as 30 to 29.----
 4th, In the five sickly Years between 1715. to
 46. the Births are to the Burials as 9 to above
 19; and in the five healthy Years in that Pe-
 riod, as 7 to 10.---- 5th, Christenings of those
 five sickly Years are to those of the five healthy
 as 18 to 18 $\frac{1}{2}$; Burials above 15 to 10.----
 6th. During five of the healthiest in *London*,
viz. 1715, 17, 32, 44, 45. the Baptisms were
 to the Buryings as 41 to 55, or 10 to 14. In
 the five fatallest Years there, *viz.* 1723, 29,
 33, 40, 41. they were as 42 to 75.--7th. Births
 in the fatallest Years are to those of the healthiest
 as 83 to 81, the Burials above 15 to 11: So
 that sickly Years are far more fatal to *Dublin*
 than *London*; for in the former they are 7 to
 15, in the latter as 11 to 15.---- 8th. This dis-
 proves the Opinion, that sickly or mortal Years
 are always the barrenest; for in the five
 healthy Years in *London*, the Christenings were
 scarce 82 to 84 in the sicklyest Years.---- 9th.
 This shews us the small Disproportion there is
 between the Product of fruitful and barren
 Years in general, and how great Odds there is
 between the Deaths of sickly and healthy Years
 in *Dublin*, one being as 36 to 37, the other as
 15 to 10.---- 10th, As there is a wide Dif-
 ference between the different Degrees of Morta-
 lity in *London* and *Dublin*, so in the Ages of
 People carried off at different Times in the same
 Place; for *Dublin* seems to have been more un-
 favourable to Children formerly than now; for
 from 1715. to 23. were buried under 16
 Years of Age 13236; above 16, 11522, almost

13 to 11: the contrary whereof we proved before to be the Case of *London*. In 1733, 34, 36, 40, and to 46, died under 16 Years old 10394, above it 15132.----- 11th. 1716, 17, 21, 22, 23, 26, 27, and 31. were mortal to Children; for of them died 12640, and of Adults only 100005. But in 1729, 40, and 41, the Case was otherwise; for of Adults died 6045, and of Children only 3267. Here are eight fatal Years to Children, and only three to Adults.---- 12th. Hence we see, that as the Diseases of Adults return seldomer than ordinary, so they are more destructive; for the greatest Mortality of Children was in 1717. and 22. when each time about 1700 died; but in 40. and 41. above 4100 Adults died.----- 13th. Though Infants and Children undergo their proper Diseases but once in Life, yet they return oftener to the same Places than the Diseases of Adults, who are liable to the common Epidemics oftener.----- 14th. Here we see to what Ages, Intermittents, Remittents, nervous or malignant Fevers, Dysenteries, &c. are most dangerous and fatal; and of what Distempers Children or Adults can bear the greatest Shock.-- 15th. Here we also see the different Destruction that commonly several Distempers make of sundry Ages: for as the inflammatory Distempers of Children carried off 1712 of them in 1722. so the Intermittents and Remittents of 1729. killed 1898 Adults; and the malignant putrid Fevers of 1740. and 41. made a Slaughter of 4147, mostly Adults. Thus we see that the present State of Health in *Dublin* is
very

very different from that of *London* in different Ages and Years.----- 16th. In the Abstract of the *Dublin* Bills from 1715. to 46. we have the Extremes of both Ages that die; for in 1722. died 1712 Children, and in 44. only 595, or 17 to scarce 6. In 1741. died 2145 Adults, and in 1730. only 839, which is as 21, to 8. which again shews what we generally meet with in Registers.----- 17th. That when a Mortality makes great Destruction of Adults especially a Series of healthy Years mostly succeeds. There we see it did from 1729. to 40. and from 41. still continues very healthy; most of the weak declining broken Constitutions, and bon Companions being taken off.

Having at a Medium supplied the Chasm of the three Years and nine Months in the Births, and the nine Months wanting in the Burials, I find--- 1. That *London* and *Dublin* do not always proportionally increase and decrease at the same time; for from 1673. to 80. the *Dublin* Bills sunk one fortieth Part *per Annum* from what they were from 1666. to 72. and the Christenings about one twenty-fifth; but from 1673. to 80. the *London* Births rose 925 yearly at a Medium, and the Burials 2019.--- 2d. In 55 Years, *i. e.* from 1666. to 1721. the *London* Burials increased from 17097 to 28083 at a Medium yearly, or from 17 to 28. The Christenings from 11580 to 17957, or $11\frac{1}{2}$ to almost 18, and the *Dublin* Births from 1009 to 1149 $\frac{1}{2}$ or from 10 to $11\frac{1}{2}$. The Burials from 1640 to 2684.--- 3d, By comparing the Sepulchrenary from 1715. to 21. with that from 1740. to

to 46. we see from the Decrease of Funerals both in *London* and *Dublin*, both the different Healthiness of the two Septenaries, and what Numbers of People both of them have contributed to the present War; though each of those two Septenaries had two most fatal Years in them. For the *London* Burials are fallen from 28083 to 26573, or near one fourteenth; and the Births in that time from 17957 to 14506, or from almost 9 to $7\frac{1}{2}$; the *Dublin* Burials from 26 to 23; but its Births increased much, viz. from 11 to 15. So that as *London* has decreased in both Births and Burials in the last Septenary, *Dublin* has increased near one fourth in the Births ---- 4th. Since the Proportion between Births and Burials keeps pretty much the same in both Cities; then taking it in the general, the State of Health in both is not very different, and that the Resort from the Country, and of Strangers, is near the same in both in Proportion to their Bulks. ---- 5th. Though it has been thought that *Dublin* contains more *Roman* Catholicks in proportion to its Magnitude than *London*; yet there is no great Odds in Disproportion between the Births and Burials of the two Places. ---- 6th. Though since the happy Accession of the present Royal Family, the Number of Protestant Dissenters has greatly decreased in *London*; yet the Disproportion between Births and Burials is greatly increased; for from 1715. to 21. and from 1740. to 46. the Odds in the Births is shifted from almost 9 to 7, and of the Burials from 14 to 13. Though the Odds in the Funerals may

may be occasioned from the War, since many are killed or die abroad that otherwise would die at home. But in *Dublin*, the Difference between these Septenaries in the Births is from 11 to 15, in the Burials from 26 to 23, which is a Presumption that Disaffection to the present Establishment is increased in *London*, but decreased in *Dublin*; and that greater Care is taken to prevent or suppress Disaffection in *Dublin* than in *London*.---- 7th. Seeing the Disproportion between Births and Burials in *London* from 1604. to 43. was $8\frac{1}{2}$ to 11 before the Division broke out in the Church, we see what Regard is due to such as assert, that before that Schism, Births and Burials were pretty much alike, or equal there.---- 8th. Since *London*, from 1604. to 23. at a yearly Medium, buried only 8400, and *Dublin* for the last 80 Years (we suppose) buried about one eleventh of their Number; then *Dublin*, at that Time, scarce buried 164 yearly; so that *London* and *Dublin* contain between three and four Times the Number of Souls now that they did then, viz. 120 Years before 1721.---- 9th. That *London* and *Dublin* both have far exceeded *Paris* in their Increase. For in 1670, 71, 72. *Paris*, at a Medium, buried 18813; but from 1728. to 36. it buried only 17804 yearly, so that it is rather on the Decrease; which shews the great Advantage of Property secured by Law, beyond the Exaction and Oppression of civil or military Affairs, or greedy and tyrannical Landlords; for Property so secured will excite the People's Industry, and
cause

cause their Resort and Increase.---- 10th, The Baptisms in *Dublin* being only five eighths of the Funerals, but in *Paris* as 18 to 17, shews us the dire and impolitical Effects of Persecution of a People who would be faithful to their lawful Prince; for hereby we see the Protestant Religion is now almost expelled and extinct in *Paris*, (though they were formerly an Over-match for their Enemies) and shews us what we are to expect, should we charily and tenderly connive at, or nurse up Papists, till they become our Masters. And as the Expulsion of Protestantism there, is chiefly owing to the Priests, we see how dangerous it is for a People to make them their Masters; for if they can compass their Ends, they will make the Prince absolute, and the People miserable; especially when the very Principles of the Clergy teaches Cruelty and Bloodshed.

A yearly septenary Medium of the *London* and *Dublin* Births and Burials are thus presented to the Eye at one View.

Tab. XXIV.

| | BIRTHS. | | BURIALS. | |
|-----------------|----------------|----------------|----------------|----------------|
| | <i>London.</i> | <i>Dublin.</i> | <i>London.</i> | <i>Dublin.</i> |
| From 1666 to 72 | 11580 | 1009 | 17097 | 1659 |
| 1672 to 80 | 12325 | 972 | 19116 | 1580 |
| 1715 to 21 | 17957 | 1149 | 28083 | 2669 |
| 1740 to 46 | 14506 | 1505 | 26573 | 2362 |
| Totals | 56368 | 4635 | 90869 | 8270 |

From

From the total annual Medium of these four Septenaries, we see the *London* Births are to these of *Dublin* near as 12 to 1; the Burials as 11 to 1.--- 2d. From 1692. to 98. the annual *London* Burials, at a Medium, were 20433, the 11th of which is about 1858; the *London* Births were 14904, the 12th of which is 1242. 1682 was a fatal Year in *Dublin*, 2262 died in it; and in 84. 24100 died in *London*. Here *Dublin* Burials were 72 above the 11th Part; which shews the Distemper to be more fatal in *Dublin* than in *London*. Multiply 1858, the Medium of the *Dublin* Septenary, by 22, and the Product is 40876. But the total Inhabitants of *Dublin* being numbered in *January* 1695. were 40508; but 40876 is 368 above this Account: or if we divide 40508 by 22, the Quotient is 1841; which multiply again by 22, the Product is 40482, or 26 short of the true Number. The 17 yearly Burials above the Medium arise from the Mortality 1682: Here divide 40508 by 5, the Quotient is 8101, or the Number of Families in *Dublin*; then (for I have sufficiently proved before, that, without running into Absurdities of very bad Consequence, we must never allow above five to a Family, and but seldom so many) exclusive of Lodgers and Boarders, which are not to be reckoned Inhabitants, but Sojourners or Itinerants. Again, divide the 8101 Families by six and a half, the Quotient is 1246, the Number of Children born yearly of those Families; having fully proved from Table 8th, and its Additions, that every 13 Families, one with
1 another,

another, produce yearly two Children : So that the Children of Lodgers and Intinerants, born and baptized in *Dublin*, compensate the Number of unregistered Children of the Inhabitants, besides several unregistered baptized Children of Lodgers, and such as baptize not at all, nor register with the Church. I was surprized to see the Author of the Observations on the *Dublin* Bills of Mortality say, that in 1670. there were but 3850 Houses or Families in *Dublin*, when the Mean of the yearly Christenings were 1009, which necessarily requires 6559 Families to produce. They must also bury a Number equal to their whole present Inhabitants in about $11\frac{1}{2}$ Years. In 1745, the Houses or Families in *Dublin* were numbered again, and found to be 9214, and their yearly Baptisms then, at a Medium, were 1507; which Births, (suppose they were all registered) require 9795 Families to produce: which shews, that in their Accounts they mean Houses, not Families; and that several Families of Lodgers and Sojourners are crowded up in one House of the meaner Sort, especially if we make due Allowance for unregistered Baptisms, which are always more than the Funerals. Therefore to take the Number of Houses, and not Families, as they do here, is a meer Jest. Of these 9214 Houses, 5639 were inhabited by Protestants, and 3575 by Papists. But Protestants must lodge in their Houses 4156 other Families, whose Children (or a Number equal to them) are registered. But 3575 Houses, or near two fifths of the Houses, being possess'd by

by Catholics, add 2700 more, in proportion of 11 to 8 (as was done with the Protestant Houses) and the Number will be 6275, whose yearly Births are about 950, which are supposed to be unregistered, of all Denominations. Thus the whole principal Householders in *Dublin* are 9214; the Families (including constant or fixed Inhabitants, Sojourners, Lodgers, &c. are 9795 whose Children are registered, and 6275 of all Denominations, whose Children are not registered, in all 16070 Families; and 80350, allowing 5 to each Family, or 76333, allowing $4\frac{1}{2}$ Souls to each Family, whose yearly Births are about 2471, and Burials about 2700. Thus will a Number equal to the present Inhabitants be born in about $30\frac{1}{2}$ Years, and buried in about 20 Years. This differs but about 4000 from the 11th Part computed before to be in *London*. Thus *Dublin* buries a Number equal to its Citizens in 24 Years. This also detects their Mistake, who say there are six Catholics in *Dublin* for one Protestant, since registered Baptisms are to unregistered as 15 to 9, and registered Funerals are to unregistered as $23\frac{1}{2}$ to $3\frac{1}{2}$.

Registers are not destitute of surprizing Instances of kind Providence; as, 1st, That the same Year is seldom mortal both to Children and Adults in general; for when an uncommon Sweep of Adults comes, God is gracious to their Children, that they may quickly supply their Parents Places; or if he remove the Root, the Branches are left; or the virtuous and sober surviving Adults are soon blest with

a lovely Offspring.----- 2d, Some Mortalities steal on, as it were, insensibly, but continue long; as that which began in 1722. was scarce out before 1730. Others again, as it were, surprize a secure World at once, and a few Months determine them, as that of 1740. and 41. Sometimes a communicated Contagion or Infection makes sad Havock, but it is soon over. At other Times, Epidemics attack with all the Assistance of Air, Seasons, and Food, to let us see who has the Command and Ordering of these in his Power, and consequently our Health and Lives. Sometimes Providence so orders it, that the Violence or Virulence of a Distemper is spent before it reaches us; as it may be a Plague in one Place, but turn to a pestilential spotted Fever before it reaches another, and only a malignant, putrid Fever, before it comes to a third Country: Or he may increase its Virulence in its Progress; it may begin a putrid Fever, turn to a pestilential, and prove the Plague in a third Place: Or if he design a general Visitation, he first sends to such Places as it shall be quickly spread over all the neighbouring Countries, as into a Camp just about to break up, or a Fleet about to sail for different Countries; or he can send it in the Air, or by common Food, and many other Ways he has for Correction.---- 3d. Though his Mercies are often general, yet his Judgments are rarely such; for he never visits all Places at once.---- 4th. When a City, Town, Village, or a Corner of a Country, or even sometimes a single Family, degenerate strangely in

in their Principles, or Practice, or both, God permits or commissions Diseases, Death, or some other Calamity to smite them; and that from slight, trifling, or wholly unintelligible Causes to visit them; as by the Plague in a Letter, Cloaths, Goods, &c. Inflammatory Distempers, nervous, putrid, malignant Fevers, brought in by a Stranger, Traveller, Visitor, or the like; and says to the Disease, as to the proud raging Waves of the Sea: *Hitherto shalt thou go, and no farther.* Yea, either for Correction or Trial, he sends Tempests, Meteors, Mildews, Rot of Corn or Cattle, &c. to some particular Places, and not to others.—5th, Of Mercy, when the People of a Place, or Country, have long groaned under, or been often tediously and fatally afflicted with a Disease, or Diseases, he removes it. Where are now our general Leprosies, Rickets, frequent Returns of the Plague? Great Mortalities by Agues? Some of these are removed, or prevented. For others, Providence has (to us) casually discovered Antidotes; as the Use of Sulphur Waters in Leprosies; the Jesuits Bark in Agues, and other intermittent and periodical Cases. And 'tis to be hoped that the great Destruction of Children and Youth by the Small-pox will be much lessened, when the unreasonable and ungrateful Objections to Inoculation are removed.

6th. From Registers compared with Histories, we see the Vicissitude and Uncertainty, not only of Life, but of all worldly Things Estates, Riches, Honours, Families, &c. Dear

not only levels crowned Heads, Princes, Peasants and Beggars; and Providence not only transmits Estates, Riches, and Honours, from Person to Person, from Family to Family, but Kingdom from People to People; so that the Descendants of the most wretched, miserable, loathsome Beggars, come to be Proprietors and Possessors of the worldly All of the Great and Mighty; and the Posterity of Princes, in their Turn, are tumbled down from their Grandeur to the Footstool or Dunghil; and the Seed of Renegadoes and Exiles are raised to Principalities, Kingdoms, or Empires, and their former Owners are extirpated or expelled. Of these Changes there is Resistance. But where Piety and Virtue reside longest, all earthly Blessings are of the greatest Continuance; and as these decay and wear out, so do the others. No room then for Pride and Contempt of the Poor, or these below us; for what the greatest are now, theirs, in a few Generations, may be, and *vice versa*.

7th. We may say, with Dr. *Hally*, that since 38,304 die under 16 Years of Age, for 21,269 that exceed it, 'tis unjust to repine at the Shortness of our Lives, since so great a Number of those that are born are snatched off in so few Years; but to esteem it a Blessing if we survive that Time which has swallowed up so great a Number of our Cotemporaries; and with Patience and Unconcern submit to our Dissolution, which is the necessary Condition of our perishable Materials.

I should here have put an end to this Discourse ; but having made my Compliments to so many ingenious Writers on this Subject, the learned *Dutch* Author, *William Kerffseboom*, might justly take it as an Affront, rudely and abruptly to leave the Stage without taking the least Notice of him, who has laboriously computed the Number of Souls in the two Provinces of *Holland* and *West-Friesland*, and found them to be 980,000. To prove which he lays down three Principles, or *Data*. 1. His Observations on the Table of assignable Annuities in *Holland*. 2. That there are yearly 28,000 live Children born in these two Provinces. 3. That the whole Number of inhabitants of any Country is, to the Number of Births, as 35 to one. But as to the first, 'tis rare to purchase Annuities on visibly bad Lives ; nor do they concern the Multitudes of fresh Incomers into a rich, frugal, trading Country ; nor have many Exports much to do with them. His second Principle is meerly suppositious, and so like to be fallacious, and cannot be admitted for a *Datum*. His third Principle is demonstrably false, of which several printed Bills of Mortality might have convinced him ; as those of the *Prussian* Dominions, the very healthiest I have seen. For taking the whole Births together, including Bastards, (which make one 30th of the whole, whose Procreation and Expences licensed public Stews might have prevented) Tergemini and Twins ; yet the annual Births are not to the Weddings as 4 to 1. Becas as was observed above, where Subjects ha

Property, there are great Crouds of Exports, as well married, as unmarried, and the Weddings of the former are registered there, but not the Births of their Children; nor are there fresh Incomers to marry and supply their Place. But let us cast about, and come to the Christenings and Weddings of *Amsterdam*, from 1617, to 1624, the yearly Medium baptized in the Reformed Churches, was 7505, married 2347. The former is to the latter scarce $3\frac{1}{2}$ to 1; or take we in his present yearly Christening at *Dort*, *Harlem*, *Delft*, *Leyden* and *Amsterdam*, whose Medium is 11749, Marriages 3733. the former are above $3\frac{1}{2}$ to 1 of the latter. And of two noted inland Towns in *England*, whose accurate Registers, for a long Series of Years, now lie before me, with the exact Number of their Inhabitants; their annual Births are to their Weddings, at a Medium, as $3\frac{1}{2}$ to 1. The same might be proved from many other Instances now before me; and all agree, that where-ever Births are to Weddings as $3\frac{1}{2}$ to 1, from 27 $\frac{1}{2}$ to 29 Years, Births are equal to the total present Inhabitants of a Country or Place. *Paris*, which has 4 $\frac{1}{2}$ Christenings to each Wedding, cannot be admitted a Voucher for him; the most Christian King being both too Christian and too Politick, legally, for the Lucre of a small Tax, to allow Stews, to prevent Procreation by common Prostitutes there; therefore, besides several others, he has his Foundling Hospital, where Multitudes are baptized, whose Parents were not married there. There is also the Report of the Court, and principal Officers

Officers of State and Army, with their Families, whose Children being born there, are baptized. So that allowing 28,000 live Children to be born yearly in those two Provinces, (for I cannot disprove it) yet I cannot allow above 28, or, at most, 29 Years Baptisms to equalize the Number of the present Inhabitants, which therefore cannot exceed 812,000. which is subtracting 168,000 from his 980,000; nor indeed are they so many as 800,000. We have already seen the Disadvantage, both to Government and Subjects, of such extravagant Computations; except when they compare themselves to some favourite neighbouring Nation, and fondly conceive that they and their dear Neighbours, in case of War, may join and bully all adjacent Kingdoms and States into their Measures, without striking a Blow; or intimidate them into an inglorious Peace.----- As the above five *Dutch* Towns bury about 1-22th Part more than they baptize, by consulting the Additions to Table 8th before, may be soon seen in how many Years they bury a Number equal to their present Inhabitants, and consequently their Trade and Resort of Strangers.

'Tis no Wonder he should reckon the *London* Christenings fewer than those of *Paris*, since the ingenious Mr. *Maitland* has, with great Diligence, discovered 181 Congregations whose Christenings are never published. And tho' the Buryings of *Paris* in 1736 did, at a Medium, run so high as 17,804. (when the Medium of the *London* Bills was about 27,000.)

or supposing they had buried 21,000, as in their fatal Year 1670; yet in 78 and 79 died, yearly, out of two of their Hospitals only, (*viz.* the *Hotel de Dieu*, and *la Charité*,) 7408. Whereas out of two of the greatest *London* Hospitals, *viz.* *St. Bartholomew's*, and *St. Thomas's*, died not 500. And if two of their Hospitals make so large an Addition to their Buryings, what must the other Hospitals, Nunneries, &c. make? What a sorry Figure would their other grand Bill make, in Comparison of *London*.

'Tis not at all surprizing that either *French*, or frenchified *Dutchmen*, should be out of Humour with Sir *William Petty's* Essays; for he charges the *Parisians* with being mewed up and crambed together, with Poverty and Beggarliness, since 20 of the Sick in *Paris* prefer going into Hospitals, for one in *London*. He therefore blames either their Situation, Badness of their Air, Inhumanity of their Physicians, in not duely attending the sick Poor, or the Unskilfulness of their Surgeons; since above 1-4th die out of their Hospitals, and scarce 1-50th Part die out of the *London* Hospitals. And since such Numbers die out of the *Hotel de Dieu*, they die not by natural Necessity, but by the bad Administration of that Hospital. That fewer die out of the most poor and wretched Hospitals in *London*, than out of the best (*viz.* *La Charité*) in *Paris*; and that the poorest People in *London* have better Accommodations in their own mean Houses, than the *French* have in their best Hospitals in *Paris*.

He

He computes the *French* King's yearly Loss of 3,506 Subjects (valuing them only at 60*l.* per Head, the common Price of *Algerine* Slaves,) to be 210,360 Pounds Sterling; or 252,432 *French* Livres; all which, he says, might be saved by encreasing the Fund of that Hospital, (See his two Essays on the People of *London* and *Paris*, printed in 1687.) If all this move not *French*, or frenchified Choler, they deserve to pass for good-natured People. Tho' I readily agree with *Kerſſeboom*, about the Dignity and Usefulness of *Davenant's* Observations on *King's* Bills of Mortality; yet I must dissent from him, as to the Justness of his Computations, and Design of some of his Inferences.

I shall conclude this Part with the Observation of an eminent Judge of this Nation; that the Growth and Encrease of Mankind is more stinted, from the cautious Difficulty People make to enter on Marriage, from the Prospect of the Trouble and Expences in providing for a Family, than from any thing in the Nature of the Species; nor are the Poor culpable for their Cautiousness herein, since the Difficulty of their subsisting arises not only from the Narrowness of their own Circumstances, and Incapacity to extend them much; for besides themselves and Families, they are to provide for their Landlord, and Masters, and their Families. For were only 3 Women of 17, between 15 Years of Age and 45, married, and bear Children yearly, we might expect several more Children every Year (allowing for dry Pairs.) Since the Strength and Glory of a

King depends on the Multitudes of Subjects ; and the Flourishing of Trade and Agriculture, on the Number and Diligence of People, then Cœlibacy, Whoredom, Adultery, and Gratification of unnatural Lust, ought by all means to be discouraged or suppressed, by making the last capital and unpardonable in all Ranks of Men, and laying the first under heavy Taxes (toward the Support of the married Poor,) and drawing out the second into Military Service, when wanted, or sending them into the Plantations, and making the Third severely punishable, which many Countries, both Pagan and Christian, have made Death. And to make Taxes, Fees and Cessments on married Poor easy, only find them Employment for their own and Families Maintenance ; punish Drunkenness, and Idleness ; discard useless Pensioners, and Deputy Officers in the Government ; suppress Luxury, Voluptuousness, and Intemperance ; let arable Grounds be improved, and others enclosed ; oblige every Man at home to marry his Whore, or pay a smart Fine toward the Support of the fruitful married Poor, instead of paying Cessments toward the Maintenance of Bastards ; but make the Parents keep them, or go into the Army or Colonies ; or lay a special, distinct Tax on all Whore-masters, whether they have Children or not, to keep their Bastards.

Of the Increase and Numbering of the ISRAELITES.

THE first Account we meet with on Record, of the Numbering of any great People, is in *Exodus xxx. 11, 12. and xxxviii. 25, 26.* Where, in the 6th Month after *Israel's* Departure out of *Egypt*, we find *Moses* commanded to take the Number of all the Males, from 20 Years old and upward, of all the 12 Tribes; and the Numbered were to pay a *Be-hab*, or 13*d.* $\frac{1}{2}$ a piece, (Rich and Poor) Ransom Money for their Lives, that there might be no Plague upon them, as was afterwards the Case in the Days of *David*.---- The Reasons of this Numbering were, 1. That by this Ransom-money a Contribution might be raised, (over and above the free-will Offerings) toward purchasing, preparing, and setting up the Sanctuary. For the People numbered were 603,550. And the Ransom-money was 34,421*l.* 9*s.* 6*d.* Or at 15*d.* a Piece, 37,721*l.* 17*s.* 6*d.* *English* Money. The Poor being obliged to give as much as the Rich, shews God to be no Respector of Persons; and that the poorest had the same Right and Privilege to the Sanctuary, as the richest; and that they had as much Share and Interest in God, and Worship of that Place.----- 2. That God might shew to that great Assembly, and to all Ages, his
Faithful

Faithfulness, and extensive Completion of that Promise made to *Jacob*, *Gen.* xlv. 3.-----

3. That by their free-will Offerings, they might give a public Specimen of their Riches, and a Proof of God's faithful Performance of that Part of his Promise to *Abraham*, *Gen.* xv.

14. and to *Moses*, *Exodus* iii. 21, 22.-----

4. God delivered the Charge of this great People to *Moses*, as it were by Tale and Account of their grown-up Males.

Six Months after this they were numbered again, by God's special Order, *Numb.* i. 46. iii. 39. probably with these Views. 1. For the more orderly aranging of the Tribes around the Tabernacle or Sanctuary, that they might decamp, march, and encamp with greater Ease and Regularity.----- 2. For the Separation of the Tribe of *Levi* from the other Tribes, for their Dedication to the Service of the Tabernacle.---- 3. For the Exchange of the *Levites*, for the First-born of the rest of the Tribes. Here no Ransom-money was required, no not for 22000 Overplus that were not numbered before. 1. Because the Overplus of the First-born were to be redeemed. 2. Because they wanted no general Assessment for any public Service. The same *Israelites* were numbered a third Time, about 38 or near 39 Years and a Half after, or in the 40th Year after their Exit from *Egypt*, *Numb.* xxvi. Perhaps for these Purposes. 1. To shew that as God had been faithful to his Promise, in making them a great Nation in *Egypt*, so he had been as just to his Threatning, *Numb.* xxvi. 64, 65. The

Males now numbered, from 20 Years old and upward, including *Levites* and all, were 624,730, or about 21,200 more than at the first Reckoning; now were only 3 Men in the whole Congregation above 60 Years of Age.---

2. For a Manifestation to them, and all future Ages, of the Power and Providence of God, who provided and fed such a prodigious Multitude in a barren Wilderness 40 Years together.---

3. That as *Moses* had received the Charge of that great People by Tale or Number, so he was to deliver them up to God again in the same Manner.----

4. To shew the People, that tho' so many hundred Thousands of them had been consumed for their Disobedience, by several Eruptions of various Kinds of Plagues; yet they were stronger, in better Condition, and fitter for the War before them, that Day, than when they came out of *Egypt*; for they were not only 21,200 stronger, but all their aged, diseased, sick, worn-out Males were dead, and they were all young, hale, and inured to Fatigue. And that this young Generation having seen the righteous Judgment of God on their Fathers for their Disobedience and Idolatry, even amidst so many extraordinary Favours, and daily Miracles, might remember, transmit the Memory of it to Posterity, and all be warned to beware of the like Sins, that they might not be consumed by the like Judgments. That the *Israelites*, from these Corrections and Chastisements, might know that they were the peculiar People of God, and Favourites of Heaven, seeing he judged, and thus severely visited them

for those very Sins (tho' in a lower Degree) in which *Egypt* itself, and all the neighbouring Nations were drowned, yet had been permitted to go on so long; tho' they knew that the Nations whither they were going were to be extirpated for them, or they could have no Possessions there. It was their Idolatry with the Golden Calf that brought the first Plague upon them, within six Months after they went out of *Egypt*; yea, God upbraids their Posterity by his Prophet *Amos*, v. 25. and the Proto-Martyr *Stephen*, Acts vii. 43. that their Fore-fathers offered not their Sacrifices to him in the Wilderness, but to their Gods *Molech*, *Chian* and *Remphan*; a goodly Company of Images which they carried about with them. Adultery, spiritual and corporal together, occasioned their last great Plague in the Wilderness, *Numb.* xxv. wherein 24,000 of them died. Idolatry was the Cause of all their Subjections and Slaveries, under their Neighbours, whilst in *Canaan*, and of their Removals by Captivities. Their Connivance at the Idolatry of the *Danites* with their *Ephod*, and Images to whom *Jonathan*, the Grandson of *Moses*, was Priest, very nigh occasioned the total excision of the *Benjaminites*, between the Death of *Joshua*, and *Othniel's* beginning to judge *Israel*. But however severe God was with them for the Worship of false Gods, or of the true God, through or by Images; yet it was but all a Flea-bite in Comparison of what they suffered under *Vespasian*, *Titus*, *Hadrian*, and *Trajan*, &c. for their rejecting of the true God,

God, *Christ Jesus*. If such an unparalleled Train of Judgments followed the *Jews*, for their Idolatry in denying his Deity, who is God, and the total Rejection of the *Asiatic Churches*, for the Blasphemy of *Arius*; what shall we say of our modern *Arminians*, who are guilty of double Idolatry, both in denying the Godhead of the Son and Holy-Ghost, and yet ascribe Worship to him whom they believe to be no God, or an impossible, or meer imaginary Entity, a made, created, or inferior God? Let never Protestants be angry with Papists for their Worship of *Dulia* and *Latria*, nor with their Doctrine of Transubstantiation; that the Priest can make their Saviour, when God can make Gods, whilst they have Men of such Principles amongst them. Nor let them charge them with bloody Persecutions, when they reflect on the shocking Tragedies under *Constantius*, *Valens*, and the rest of the *Arian* Emperors. Several ingenious Hypotheses have been contrived, to account for the surprizing Encrease of the *Israelites* in *Egypt*, from 70 to 600,000, in the short Space of 215 Years, especially as the Encrease was so small for almost 200 Years in *Canaan*. But none of their pretty Schemes giving general Satisfaction, the late Mr. *Boivin*, the Elder, thinks he has hit the Nail on the Head, by examining the Chronology of *Josephus* and the *Septuagint*, and comparing it with a long Passage in *Manetho*, and so to have settled the 430 Years mentioned by *Moses* thus. They continued under *Jacob* and *Joseph*, in *Goshen*,

71 Years; after *Joseph's* Death, his Son *Ephraim* mounted the Throne in *Egypt*, and reigned 19 Years under the Name of *Salathis*; after him succeeded his five Sons successively, one after another, and reigned 240 Years, 3 Months, during a great part of which Time, a most bloody War was carried on between them and the Natives; who at last proving victorious, reduced the Children of *Israel* to their former Station, *Goshen*, and brought them under Bondage for 99 Years and nine Months. Mr. *Boivin* collars in *Moses* for a Voucher, *Exod. xii. 40.* saying, *The Sojourning of the Children of Israel, who dwelt in Egypt, was 430 Years*; but as the Saying is, *Dum vitant stulti vitia, in contraria currunt*; for hereby he has overshoot himself in his own Bow, and made their stay in *Egypt* to be 511 Years, or 81 Years more than either God or *Moses* intended. But, *who dwelt in Egypt*, is better read with a Parenthesis, and then 'tis what *Moses* designed, that their Sojourning was 430 Years, viz. from the Calling of *Abraham*, upon his leaving *Chaldea*, and coming into *Canaan*, in the 75th Year of his Age, *Gen. xii.* For from the Promise made to *Abraham* there, to *Isaac's* Birth, was 25; from that to *Jacob's* Birth 60 Years; from that to *Jacob's* going to *Padanaram*, 77 or 78 Years; from thence to his Return 20 Years; from that to his going down into *Egypt*, 32 or 33 Years, in all 215. Or if ye will rather, from the Promise made to *Abraham* when he was 75 Years old, to the Birth of *Isaac*, 25 Years; from *Isaac's* Birth to his Death 180; from

from *Isaac's* Death, to *Jacob's* going into *Egypt* 10 Years, in all 215. Or if we reckon from *Joseph's* going into *Egypt*, it will still turn to the same Account. During which 215 Years they had no settled Abode, but wandered about in Tents, till they had the Land of *Goshen* assigned them by *Pharoah*. *Shuckford* blames the interlineal Translation of the *Hebrew Bible*, and the vulgar *Latin Version* of *Exod. xii. 40.* for they misrepresent the true Sense of the Place, in rendering it thus: *Now the inhabiting of the Children of Israel in Egypt, were 430 Years.* But the *Samaritan Text* is both fuller and clearer, which is; *Now the Inhabiting of the Children of Israel and their Fathers, whereby they inhabited in the Land of Canaan, and in the Land of Egypt, were 430 Years.* With this *Josephus* agrees exactly, saying it was 430 Years after *Abraham's* coming into *Canaan*, and 215 Years after *Jacob's* coming into *Egypt*, that *Israel* went out in the Reign of *Apachnas*, 93 Years after the Beginning of the Reign of *Salatis*, who first brought *Israel* into Slavery. Besides, *Boivin* allows *Ephraim's* Sons too long a Reign of 240 Years, and all of them die without Issue. Yet we know that *Elishama*, *Amihud*, *Nun* and *Joshua*, were their Descendants. So long and bloody a War after *Ephraim's* Death, must necessarily have exhausted, instead of encreased the Males according to the Promise, that they should become a great Nation. *Moses* would also have been unpardonably remiss, had he given us a Detail of the Dukes and Kings of *Edom*, and an Account of the
Kings

Kings of several other neighbouring petty Kingdoms, and omitted these mighty Monarchs of his own Nation, of so long and formidable a Race. Nor can *Boivin's* Scheme tally with the Promise of God, that they should come out in the fourth Generation, which, however, was exactly fulfilled in many of them, *Ex. gr. Levi, Kobath, Amram and Moses*. If *Jacob* be reckoned the first, then *Amram* (who lived 137 Years) must be alive when they went out; tho' his Daughter *Miriam* was then 85 or 86 Years old. But to pass this idle Scheme, let us see what the Number of the Children of *Israel*, at their going out of *Egypt*, really was; and next account for this prodigious Encrease in so small a Time.

As to their Number, we are told, *Exod. xii. 37.* that it was about 600,000, besides Women and Children, and a mixt Multitude; which 600,000 were all Males above 20 Years old, or 60 *per Cent.* of all the Males, allowing 40 *per Cent.* to be under 20 Years old; and this even according to our own Country Registers of healthy Situations, is a modest enough Computation. Again, in the sixth Month after their going out of *Egypt*, when they were numbered at *Sinai*, we find the Number of their Males, above 20 Years old, to be 603550. Then their whole Males were 1,005,916. discounting at least the 5,916 for the superior Number of Males, then their Females were 1,000,000; both these added, the whole Nation consisted of 2,005,916 Souls, besides the mixt Multitude, whose Number we know not.

And

And tho' this be above three times the Number generally thought of, by such as overlook and forget the Women and Children; yet consider---- 1. 'Tis no more than what we find in several others of *Abraham's* Posterity, who yet had no other Share in the Promise, but as they were Descendants of him, and were to be fruitful and multiply, and have Inheritances in that Country, as the *Midianites*, *Ishmaelites*, *Edomites*, and even the *Amalekites* the Grandson of *Esau*, who came into the Field against *Israel*, when they came out of *Egypt*.----- *Jacob*, when 78 Years old, went to *Padan-aram*, and took two Wives, and two Concubines, by whom, in 20 Years, he had 12 Sons and 1 Daughter. In 32 Years more he had 56 Grandsons, 4 Great-grandsons, and 1 Grand-daughter, in all 61, besides his own Sons, *Gen.* xlvii. Again, between the first and second Numbering of the Children of *Israel*, which was but 6 Months, they had encreased 22,000; for at the first counting, all the Males above 20 Years old, of the whole 12 Tribes, were only 603,550. At the second Reckoning, when the Tribe of *Levi* were to be separated and consecrated to the Lord, and all the First-born were to be redeemed, and the *Levites* taken in Exchange, then the Males of the 11 Tribes, from 20 Years old and upward, were the same Number to a Man, that the whole 12 were before; and the Males of the Tribe of *Levi*, from a Month old, were 22,000, which is above 1-28th of the whole. *Jacob* was 78 when he went to *Padan-aram*, where
S. he

he begot 11 Sons and 1 Daughter; at 98 he returned to *Canaan*, and had a 12th Son born to him at his Entry in there; at 108 or 110, when *Joseph*, at 17 Years old, was sold into *Egypt*; 120 when his Father *Isaac* died; 130 when he went down with his Family into *Egypt*, with his Children, Grand-children, and Great-Grand-children. When *Jacob* went into *Egypt* these were descended of his Body in 51 or 52 Years, viz. from the Birth of *Reuben* to his going into *Egypt*, were 12 Sons and 1 Daughter, (which went down with him, but either was never married, or was childless, for her Children were not reckoned with the rest.) 54 Grand-sons, (including *Err* and *Onan* that died, and *Joseph*'s two Sons) 1 Grand-daughter, 4 Great-Grand-sons, besides his Sons 12 Wives, *Simeon*'s Concubine, and 2 Grand-daughters in Law, in all 86. From which, compared with the above Difference, between the first and second Numbering of them *Exod.* xxx. 26. and *Numb. Chron.* i. 1, 4, and with the Increase of the other Descendants of *Abraham* and *Jacob* above, 'tis plain they doubled once every 15 Years, according to the first Part of the following Table, which gives their Number and Encrease every 15 Years. Fig. 1, 2, 3, of Col. 1st. &c. is for the first, second, and third 15 Years, &c. the first Col. of the second Part of the Table gives the Number of Males of every Tribe at the second Numbering. Col. 2d. their Numbers 39 Years after. In the last 5 Years of the Encrease, or 1-3d. of 15, instead of taking a 3d Part, I have only taken

taken 1-4th, which is yet too much by 170,000. because the 2d and 3d five Years of each 15, the Number will necessarily rise much higher than in the first. The Total at Bottom is only for the last 15 and 5 Years, not the whole.

Tab. XVIII. Of Increase.

| 86 | | The two Accounts of the <i>Israelites</i> , <i>Exod.</i> xxxviii. 26. and <i>Numb.</i> i. and xxvi. Chap. compared. | |
|---------|---------|---|--------------------------|
| | | | <i>Numb.</i> xxvi. Chap. |
| 1 | 172 | Reuben, | 46500 |
| 2 | 344 | Simeon, | 59300 |
| 3 | 688 | Gad, | 45050 |
| 4 | 1376 | Judah, | 74600 |
| 5 | 2752 | Issachar, | 54400 |
| 6 | 5504 | Zebulun, | 57400 |
| 7 | 11008 | Ephraim, | 40500 |
| 8 | 22016 | Manasseh, | 32200 |
| 9 | 44032 | Benjamin, | 35400 |
| 10 | 88064 | Dan, | 62700 |
| 11 | 176128 | Asher, | 41500 |
| 12 | 352256 | Naphthali, | 53400 |
| 13 | 704512 | Levi, | 22000 |
| 14 | 1409024 | | |
| 15 | 764512 | | |
| 2173536 | | 625550 | 624730 |

This uncommon Increase seems surprising to us at this Distance of Time, when human Life is much abbreviated, Constitutions weakened, especially in our Climate, Country, and Way of Life, all so different from theirs. But yet 'tis easily accounted for; 1. From the Promise made of their Fruitfulness. *Gen.* xiii. 16. *I will make thy Seed as the Dust*

Earth, so that if a Man can number the Dust of the Earth, then shall thy Seed also be numbered, Gen. xv. 18. and Chron. xxvi. 4. We see further from the History itself, that all Abraham's Posterity were Sharers of this Promise, tho' it, with the Promise of Canaan, and of the Messias to come of his Family, especially related to Isaac and Jacob's Descendants.-----

2. The Mens early and long Capacity for health and strong Generation, viz. from 14 to 100 Years old, or above.----- 3. Their vastly superior Number of Males to Females, whilst in Canaan; *Abraham* had 8 Sons, *Isaac* two, *Jacob* 12, and only one Daughter. His 12 Sons had 54 Sons, and only one Daughter; this made room for a prodigious Increase as they were to take Wives from among other People.----- 4. Their Polygamy or Concubinage with Women from amongst the neighbouring Nations being connived at, and that at any Time of Life. *Abraham* married *Keturah* at 140 Years of Age, and had six valiant Sons by her. *Jacob* was 78 before he married, yet had 13 strong long-lived Children. The *Jews* in *Egypt*, were not yet confined to marry either with their own People, or in their own Tribes, Daughters were so scarce among them, till they were much encreased. They might marry Women out of other Nations where they dwelt, but especially Concubines, they becoming Profelytes to the *Jewish* Religion, which was only the moral Law then, or the Religion of Nature uncorrupted, and free from Idolatry, without the ceremonial Law, Offerings,

ings, or Sacrifices, which the *Egyptians* would not suffer, *Exod.* viii. 26.---- 5. It was promised that Abortion or Barrenness should be Strangers, or unknown among them. *Exod.* xxviii. 26. *Deut.* vii. 14.----- 6. Immature, or improlific Deaths were rare among them; for from the Days of *Nabor*, (who was the first Patriarch that set up Idolatry, *Josb.* xxiv. 2.) *Abraham's* Grandfather, not one Male of their Seed died before their Fathers, *Haran*, *Err* and *Onan* excepted, and all these three were married; they buried not their 33, 46, or 57 per Cent. *impuberes* as we do, nay not one. And 'tis more than probable, from *Deut.* xiv. 31. that this was their Case in *Egypt*, as it was still to be in *Canaan*, if they were obedient. For we may observe, that as the Threatning, *Numb.* xiv. 26. extended to all Males above 20 Years of Age, so the Promise to their Seed, *ver.* 31. is as favourable; and as few of their Deaths do we meet with in the whole History, except the little ones of *Dathan* and *Abiram*, and their Company, *Numb.* xvi. 27, 32. This is further proved from the uncommon Exemption of that People during their 40 Years Abode in the Wilderness, not only from the ordinary Havock of common Mortality, but the want of ordinary Diseases, *Deut.* viii. 4. and 5. when we compare the first and second Numbering together, and find that in 60 years time, there were as many Males above 20 of Age in 11 Tribes only, as was in the 12 before, which insinuates that dur-

Space not one Male above 20 Years old was dead.

Some have disputed this now uncommon Encrease, both by not reflecting on these extraordinary Advantages, and because the Encrease was little or none the first 160 Years or more ; but they forget that the Promise was not that their Numbers should be great before, but after they went into, and were in *Egypt*, *Gen. xv. 16. and xlv. 3.* For as the Case stood, that they were not to enter on the Possession of *Canaan* till *the Cup of the Amorites was full*, (which would not be till 430 Years were elapsed) And to have greatly encreased sooner, had been neither necessary, nor beneficial to them, but might have tended to their Prejudice, whilst Sojourners and Strangers in *Canaan* ; for it might have roused the neighbouring *Canaanites* to expel them ; and also have prevented their Reception in *Egypt*, in *Joseph* or *Jacob's* Time ; and they had no where else appointed them for Shelter till the 430 Years were expired, except they had gone back to idolatrous *Chaldea*, and perhaps been repelled there.---- It became necessary, and could be no longer delayed, that they should become exceeding numerous in *Egypt*, both to raise a Jealousy in the Natives to desire and promote their Expulsion, and to strike a Terror into the *Canaanitish Nations*, to prevent their surprizing and crushing them in their Passage thither, and to be able to deal with them when got into *Canaan*.--- Nor did Providence see it fit to consume the rebellious *Israelites* speedily in the
the

the Wilderness, for then all the Men of War had died, and only a Multitude of Women, Children and Infants would be left to fall a Victim to the Rage of their incensed Enemies; but rather took them off gradually, as the Children and Youth grew up to be fit for War, and to defend themselves and the rest. — Indeed the Increase of the *Israelites* in *Egypt* was so sudden and wonderful, as both terrified and surprised the Natives, *Exod.* i. 7, 9, 10. This Increase became the Cause of their Affliction and Bondage, *ver.* 11, 14, which began with the Reign of *Salates*, the first of the *Pastor Kings*, 13 Years before the Birth of *Moses*; which Bondage retarded not, but promoted their Fruitfulness, (as we saw above hard Labour does among us at this Day) to that Degree, as put the King and his Council on contriving the Butchery of all their Male Infants, *ver.* 15.

In the Wilderness, the Longevity of the *Israelites* was cut short to the Adults of that Generation, to what their Fathers had enjoyed in *Canaan* and *Egypt*, and from 180, 175, 150, &c. their Days was abbreviated to the short Space of 70, or 80 Years, and even that small Span attended with great Trouble and Fears. That *Moses* penned the 90th Psalm, immediately after receiving that terrible Denunciation of Judgment, *Numb.* xiv. 29. is plain, from *ver.* 7, 8, 9, 11, 12, 13, 14, 15, 16. and from the Age specified *ver.* 10. This is not (as is generally supposed) designed for Term of human Life in general, but of

then Males above 20 Years old in particular ; for at that very Time *Joshua* was 65, and lived 45 Years after ; *Miriam* 85, *Aaron* 83, *Moses* 81, and all lived 39 Years after ; *Amram* lived 107 Years, and 'tis said *Levi* lived as long ; yet *Moses's* Eyes were not dim at 120, nor his natural Strength abated. *Caleb* at 85 was as fit and as strong for War as he was at 40.--- If 70 or 80 were the common Standard of Life, most would reach it ; if the *nequid ultra*, none should exceed. That the latter is false, appears from both *English* and Foreign Bills of Mortality, which also discover the Falshood of the former ; for scarce 1 of 15 of the Baptized reach 70, and about 1 of 24 reach 80. In this Psalm we find no Mention, Insinuation, or Lamentation for the Death of Youth or Children, (as *David* did, *Psalms* lxxviii. 61.) but only for such as were above 20, 30, or 40, when they came out of *Egypt*. Therefore 'tis certain, from both Context and Ages specified here, that this first Period of Life was meant and intended for this only Time and Generation. *Moses* neither did, nor had he Occasion to lament the Death of Youth ; for they had a most favourable gracious Promise made them, *Numb.* xiv. 31. and this Promise seems rather a Continuation of their former healthy State in *Canaan* and *Egypt*.

Emendations and Additions to Table VIII.

LARGE Towns, Sea-Ports, great Road-Towns, Manufactories, or more obscure Places taken together, have not above $4\frac{3}{4}$ Souls to each Family, one with another, and Country Villages not quite $4\frac{1}{2}$ --- 2. That in Towns each 13 Families, one with another, have two Children, or six Families and a half have one Child yearly. But in Country Villages $6\frac{1}{2}$ Families only bring a Child yearly, or 27 Families have yearly four Children. This 27th Part greater Fruitfulness of Towns-people, is very near compensated by the greater Numbers of Bastards produced in them, --- 3. Towns propagate a Number equal to their present Inhabitants from $24\frac{1}{2}$ to $29\frac{1}{2}$ Years, the Country from $27\frac{1}{2}$ to $29\frac{3}{4}$ --- 4. One in about $57\frac{1}{2}$ is married yearly, or two of 115; in the Country one of 56, or near 2 of 113 --- 5. Country Towns bury a Number equal to their present Inhabitants in 26 to 32 or 36 Years, Villages from 24 to 52 Years. --- 6. In Country Towns, where there is no considerable Resort of Strangers for Trade, or in Travelling, 1 in 27 to $29\frac{1}{2}$ is born yearly, or 1 of $6\frac{1}{2}$ Families; and taken at a Medium, 1 of 7 Families dies yearly; in Villages one of 8 Families dies yearly. But though this is near the Truth in general, yet it is far wide of it in particular Places; for

a great Alteration in several adjacent Parishes, then apply to the yearly Baptisms and Buryings, find their Disproportion from the Table below, and see in what Time they bury a Number equal to the present supposed Inhabitants. Where any two or three of these five different Ways agree most, that is nearest the Truth. Another Way is, Take the Weddings of seven, eight, or ten Years, add them together; total also the Births of those Years; and if the former are to the latter as 1 to $3\frac{1}{2}$ or 1 to $3\frac{1}{3}$, a Number equal to the present Inhabitants will be born in $28\frac{1}{2}$ or 29 Years. --- 9. The next Task is, to find when any Place, Town, or Parish will double its Inhabitants, which the Reader will see in this Table, wherein the Place is supposed to produce a Number equal to its present Inhabitants, as above, in 28 Years. *Ex. gr.* if it bury only half the Number of its Births, it will double in 56 Years; if it bury two thirds, it will double in 84 Years; if three fourths, in 112 Years; if four fifths, in 140 Years; if five sixths, in 168; if six sevenths, in 196, &c. But if instead of 28, a City, Town, or Parish produce, at a Medium, a Number equal to its present Inhabitants in 26, 27, 29, or 30 Years, the same Number of Years must be taken instead of 28. But where the Buryings exceed the Births, be it a 20th, 19th, 10th, 6th, 3d, or any other Part, the Table, by counting it backwards, gives you also the Number of Supplies requisite to keep up the same Stocks besides the Increase.

Table

Tab. XIX.

If a Number is born in 27 Years, then If born in 28 Years If the Souls are 29 Births

Years

| | | | | | |
|----------------|-----|----------------|-----|----------------|-----|
| $\frac{1}{2}$ | 54 | $\frac{1}{2}$ | 56 | $\frac{1}{2}$ | 58 |
| $\frac{1}{3}$ | 81 | $\frac{1}{3}$ | 84 | $\frac{1}{3}$ | 87 |
| $\frac{1}{4}$ | 108 | $\frac{1}{4}$ | 112 | $\frac{1}{4}$ | 116 |
| $\frac{1}{5}$ | 135 | $\frac{1}{5}$ | 140 | $\frac{1}{5}$ | 145 |
| $\frac{1}{6}$ | 162 | $\frac{1}{6}$ | 168 | $\frac{1}{6}$ | 174 |
| $\frac{1}{7}$ | 189 | $\frac{1}{7}$ | 196 | $\frac{1}{7}$ | 203 |
| $\frac{1}{8}$ | 216 | $\frac{1}{8}$ | 224 | $\frac{1}{8}$ | 232 |
| $\frac{1}{9}$ | 243 | $\frac{1}{9}$ | 252 | $\frac{1}{9}$ | 261 |
| $\frac{1}{10}$ | 270 | $\frac{1}{10}$ | 276 | $\frac{1}{10}$ | 290 |
| $\frac{1}{11}$ | 297 | $\frac{1}{11}$ | 304 | $\frac{1}{11}$ | 319 |
| $\frac{1}{12}$ | 324 | $\frac{1}{12}$ | 332 | $\frac{1}{12}$ | 348 |
| $\frac{1}{13}$ | 351 | $\frac{1}{13}$ | 360 | $\frac{1}{13}$ | 377 |
| $\frac{1}{14}$ | 378 | $\frac{1}{14}$ | 388 | $\frac{1}{14}$ | 406 |
| $\frac{1}{15}$ | 405 | $\frac{1}{15}$ | 416 | $\frac{1}{15}$ | 435 |
| $\frac{1}{16}$ | 432 | $\frac{1}{16}$ | 444 | $\frac{1}{16}$ | 464 |
| $\frac{1}{17}$ | 459 | $\frac{1}{17}$ | 472 | $\frac{1}{17}$ | 493 |
| $\frac{1}{18}$ | 486 | $\frac{1}{18}$ | 500 | $\frac{1}{18}$ | 522 |
| | | $\frac{1}{19}$ | 528 | $\frac{1}{19}$ | 551 |
| | | $\frac{1}{20}$ | 556 | $\frac{1}{20}$ | 580 |

An

An Abstract of GRAUNT on the Bills of Mortality.

AFTER he has given the Occasion, Rise, and Progress of them, he comes to his Observations on the Casualties. 1. The Magistrates should take notice of the Numbers of Christenings and Buryings, that they may see whether the City increases or decreases in People proportionably with the rest of the Nation, &c. 2. He could find no Reason for distinguishing the Males and Females, nor why the Marriages were concealed. Casualties were added, that at all times the City's State of Health might appear, from the Account of Epidemics, but especially of the Plague, in which the Numbers that die are not to be taken on the Report of the Searchers, (which are old Women provided on purpose, that when they hear the Passing-Bell in any Church, immediately go and inquire of the Sexton, who it is for, and go and inspect the dead Body, and inquire of what it died; and may be imposed on, or deceived) but from Reasoning, and comparing the Plague with other Casualties; for a fourth more die of the Plague than are set down. ---- 3. The Report of the Searchers may be credited in most Articles, as they are Matter of Sense, as in Abortion, Still-born, Aged, Small-Pox, Fits, Fever, Cough, Consumption, Convulsions, Teething, Purging, Stone, Dropsies,

fies, Palsy, Pleurisy, Asthma, &c. In many Cases the Searchers Senses are sufficient, as in violent Death, Hæmorrhages, Ulcers, &c.--- 4. That of acute Diseases, (the Plague excepted) die about two ninths of the Whole; which Proportion (he thinks) gives the Measure of the State and Disposition of the Climate and Air with Regard to Health, as these epidemic Acutes happen suddenly and vehemently, upon Eruptions and Alterations in the Air.--- 5. That not above 1 of 3275 dies of chronical Diseases. This shews the State and Disposition of the Country, Food, and Air, as to Health and long Life; for as acute and epidemic Diseases shew the Aptness of the Air to sudden and vehement Impressions, so Chronics shew the ordinary Temper of the Place, and its Fitness for long Life: For in Countries subject to great epidemical Sweeps, Men may live very long; but where the Proportion of chronic Distempers runs high, it is not fit for Longevity; for Men long and always sick, are not like to attain a great Age.--- 6. Not one of sixty die of outward Grievs. Then he takes in his Table of Diseases and Casualties, which we had before, (compared with the present) and finds that seven of an hundred live to sixty or seventy Years old: That some Diseases and Casualties bear a constant Proportion to the whole Burials; such are the chronical Diseases to which the City is most subject. But epidemical and malignant Diseases keep not in Equality.

In his Chap. III. of particular Casualties, he observes, 1. That not one in 4585 are starved.---- 2. That it would be better to keep all the Beggars at the public Expence, than suffer them to beg, that they might live regularly, and not in their ordinary Debauchery; and that they might be cured of their bodily Diseases, and taught to work.---- 3. That of 229,250 buried, only 86 were murdered, the *English* abhorring Bloodshed, and using all Means to discover the Murderers, till they are found, and the Citizens themselves guarding the City.---- 4. Not above one of 1500 die Lunatic. Accidental Deaths depend on the casual Trades and Employments of Men. Only 392 of the above buried are said to die of the *French Pox*, 31 were of *St. Giles's*, and *St. Martin's*, the rest were returned dead of Ulcers and Sores, or of Consumptions.--- 5. A new Disease called the Rickets came in in 1634. and the Number of Liver-grown decreased.---- 6. Stoppage of the Stomach began in 1636. and in 1660. got to 314. This he cannot tell what to make of, except it be the Green-sickness, or Hysterics.-- 7. In 1636. 44 died of the Rising of the Lights, in 1660. 249. This Disease, the Stoppage of the Stomach, Rickets, and Liver-grown, he takes to be all near akin.--- 8. The Stone decreases, the Gout was at a stay, the Scurvy encreases, the Phthific is worn out; Agues and Fevers are entered promiscuously, or where they are distinguished, not above one of 40 of the whole die of Agues,--- 9. Abortives and Still-born are one

20th of the Baptized.--- 10. Before the Year 1642. Christenings and Buryings were about equal. (*a great Falskood, as was shewed before*) But 1648 the Christenings were but two 3ds of the Burials; and in 59 not half, from neglecting the Accounts of the Christenings because of the Confusions. Then from the Number of Abortives taken at a Medium that Year, he supposes the Births to be 8288, instead of 5670. And from the Article of childbed Women that commonly die, he thinks they were 11,500; for, ordinarily, 3 of 200 childbed Women die; but where Women use no Stays, not one of some Thousands die in Child-bed. The Reasons of neglecting the Registration of Baptisms were, the Encrease of Anabaptists. Some Ministers were apt to examine Parents too strictly before they would baptize the Children; such Parents, to avoid them, had their Children baptized by such as had neither the Keeping, nor Command of the Registers. A small Fee was to be paid for registering. The Heterodoxy and Peevishness of Parents, &c.--- 11. From 1629. to 36. the Article of Convulsions rose from 52 to 709; but when Convulsions were few, Chrysoms and Infants were many. But from 36. Convulsions and Chrysoms taken together were much less; from which he thinks Teething was crouded into these Articles before.

His 4th Chapter is upon the Plague; where he enquires in which Years most died, and in which of them happened the greatest Mortality of all Diseases in general, or of the Plague in

particular. In 1592. those that died of the Plague were to the whole, about 11 to 25. In 1593. 10 to 17. In 1603. 30 to 37. In 1625. 7 to 10. In 1636. 10 to 23. Therefore he concludes 1603. to be the greatest Plague Year of that Age. But to find in which of these Years was the greatest Mortality at large, he says, in 1592. were buried 26,490, baptized 4277, or as 6 to 1. In 1603. buried 38,244, christened 4,784, as 8 to 1. In 1625. died 54,265, baptized 6,983, as 8 to 1. In 1636. buried 23,359, christened 9,522, 5 to 2. In the last Christenings were two 5ths of the Burials. In 1592. one 6th: But in 1602. and 25. not above one 8th; so that these were the Years of the greatest Mortality. To prove which, he alledges an Error in the Account, or Distinctions of the Casualties; and that more died of the Plague than were returned under that Name; for in 1625. 35,417 only were said to die of the Plague, and of all other Diseases, 18,848. But in the Year immediately preceding, and that following, Burials were between 7 and 8000; so that adding 11000, the Difference between 7 and 18, to the 35000, the whole will be 46000, which bears to the whole 54,000 about 4 to 5; thus the said Year is as great a Plague Year as that of 1603, and no greater; thus the Mortality of these two Years are equal; therefore one 4th more died of the Plague than were returned as such. This is further proved by noting, that in 1636 died of the Plague 10,400, one 4th of which is 2,600; of all other Diseases there died 12,959, from

from which deduct 2600, there remains 10,359, more than which died not annually for several Years before nor after. The Plague of 1603 lasted 8 Years, in some whereof died 4000, in others 2000, and in one only, less than 600. But in the Year 1624. died only 11; in 26, 134 of the Plague. In 1625. the Plague decreased from its highest Number 4461 a Week, to below 1000 in six Weeks. The Plague of 1636 lasted 12 Years, in 8 whereof died 2000 yearly, one Year with another, and never less than 300; hence he will have the Infection to depend more on the Disposition of the Air, than on the Effluvia from dead Bodies; which he also infers from the sudden Jumps the Plague has made, leaping in one Week to 118 to 927, and back again from 927 to 258; and from thence up again next Week to 852. Pestilential Diseases, as Purple Fevers, Small-pox, &c. are Fore-runners of the Plague, as in 1622. 23. 24. &c.

His 15th Chap'er contains other Observations on the Plague and Casualties. The Encrease or Decrease of the Citizens is to be reckoned from the Christenings (for many die there besides Inhabitants, tho' few others are born there) which were well kept before the Schism happened in the Church, which were from 110 to 130 *per* Week; and for all the present Breach, they keep pretty regular and proportionable still; but in the Plague Years they decreased to under 90. Of teeming Women, some died, others fled, and many miscarried. From *March* to *July* 1602, not above 20 *per* Week

Week died of the Plague, yet the Christenings were one 4th lower. From *July 21. to October 12.* died, at a Medium, 70 *per Week*; Christenings were reduced to two 5ths; this was from flying as well as Abortion, for 25,000 died in that Time. From *December 1624. to the Middle of April*, died not above 5 *per Week* of the Plague; Christenings 180, which by the 22d of *September* decreased gradually to 75. The City was re-peopled again by the 2d Year; for in 1627. the Christenings were 8,408, or 291 more than 1624. the Year before the Plague began, which swept away 54,000. This Encrease is by a new Resort to *London* out of the Country, and not by Procreation; which is proved from the Christenings before 1603. being 6,000, that Year only 4,789, but the next Year 5,458, and in 1605. 6,504. So that let the Mortality be what it will, the City repairs its Loss in two Years.

His 6th Chapter is on the Healthiness, Sickliness, and Fruitfulness of Seasons; and after the several Plague Years, gives us the sickly Years, whereby he means these Years wherein the Burials exceed those of both preceding and following Years, and yet not above 200 die of the Plague. He allows them not to be sickly Years wherein more die, for that may proceed from Encrease and Access of People to the City. The sickly Years were 1618. 20. 23. 24. 32. 33. 34. 49. 52. 54. 56. 58. 61. The more sickly the Year is, the less fruitful. Kings Accession to the Throne are not always Plague, or sickly Years. The Diseases, besides the Plague, which make the City

City unhealthy, are Spotted Fevers, Small-pox and Dysentery.

His 7th Chapter is on the Difference between Burials and Christenings. Tho' the Burials greatly surpass the Christenings, yet the City decreases not ; for from 1603. to 44. both exclusive, were buried 363,935, baptized 330,747. The City is supplied out of the Country, both to balance the overplus Buryings, and encrease the Inhabitants ; which is a Reason why *Winchester*, *Lincoln*, and some other Cities, decrease, and many Towns in *Cornwal*. The Country has 6,339 Christenings for 5,280 Buryings, whereby the City may encrease without decreasing the Country. For all *England* being supposed to have but 14 times more People than *London*, the former will abundantly encrease both. For if there be in the 130 Parishes contained in the Bills of Mortality 460,000, then there are in all *England* 6,440,000 Persons ; from which subtract the *Londoners*, there remains 5,980,000 in the Country ; and they encreasing a 7th Part in 40 Years, the whole Encrease of the Country will be about 854,000 in 40 Years, out of which Number let 250,000 be sent up to *London* in that Time, or 6,000 yearly ; to supply the above Alterations in the City from 1603. to 44. above which is thus proved. The Burials in all the Parishes, and of Diseases, from 1603. to 12. were, at a Medium, 9,750 ; and between 1635. to 44. 180,000, the Difference is 8250, which is the total Encrease of Burials in 40 Years, or about 206 yearly. Now to produce

this yearly Encrease, add 30 times as many to the City, (allowing 3 to die yearly out of 11 Families) viz. 6,180 Incomers, which multiply by 40, the Product is 247,200, which is less than the above 250,000 proposed; so will there remain above 600,000 of Encrease in the Country, in the said 40 Years, both for Encrease, War, and sending into Colonies. That *England* has 14 Times as many People in it as *London*, is probable, as *London* pays one 15th of the whole Taxes. *England* and *Wales* have 39,000 square Miles of Land. In a Market Town in *Hantsire*, containing twelve Square Miles, there are 220 Souls to every square Mile; for which he abates 1-4th, as it is more populous than in other wild Countries; so that 3-4ths multiplied by the Total of square Miles, produces 6,400,000 Souls in all, including *London*. There are about 10,000 Parishes in *England* and *Wales*, allow 600 Souls to a Parish, one with another, there will be 6,000,000 of People in the Nation. In *England* and *Wales* are 25,000,000 Acres of Land, and if they contain 6,000,000 of People, which is 4 Acres for every Person, he concludes that the Nation does increase; and if some Places decrease, 'tis to supply *London* only. The Burials in *London* exceed the Christenings, because the Proportion of those subject to die, unto those capable of Breeding, is greater than in the Country: For if there are 100 Persons in *London*, and as many in the Country, if there are 60 of them Breeders in the former, there are more than 60 in the latter; or *London* is more
un-

unhealthy, and enclines Men and Women more to Barrenness, which yet is scarce discernable in comparing the City and out Parish Bills together.---- The Reasons why there are fewer Breeders in *London*, than in the Country, are, the Resort of People to *London* about Law, for Trade, Manufactories, Rarities, or for Pleasure or Curiosity, or to be cured of Diseases, who mostly have their Wives in the Country. Many Apprentices stay unmarried some time after their Time is out. Many Seamen leave their Wives behind them. *London* is more unhealthy (especially to Children and new Comers) from the Smoaks, Stinks, and close Air. Tho' the native Air of *London* is not the Cause of Barrenness, yet the Citizens Intemperance in Feeding, and their Fornications and Adulteries, hinder Breeding; for a Woman by admitting many Men is so far from having more Children, that she has none at all. Men in *London* are also more thoughtful, which hinders Breeding.

Chap. 8th, of the Difference of the Numbers of Males and Females. From 1628. to 62. exclusive, were buried, Males 209,436, Females 190,474, or near 1-11th more of the former than latter, (*which at once shews the little Trade of the City then, to what it is now, and how few of the Citizens have been consumed in the Civil Wars.*) Not because *London* is the great Shop and Stage of Business, whereof Males bear the greatest Share; for in the same Time were baptized 139,782 Males, and 130,866 Females (which is consonant to his 3

Market Town Bills,) or $15\frac{1}{2}$ to $14\frac{1}{2}$. The Christian Religion that forbids Poligamy, is more agreeable to the Law of Nature than Mahometanism that allows it; for one Man having many Wives signifies nothing, except there were many Women also in Nature for one Man: for tho' of several of the Brute Kind, one Male may impregnate many Females, yet the Number of Males is lessened by Castration; or if they were not thus diminished by promiscuous Copulation, the Females would be barren, as we see in common Prostitutes; but wild Brutes, none of whose Males are castrated, breed and increase much slower, tho' few of them are killed, and many of the others. Tho' more Males are born than Females, yet considering that more Men die violent Deaths than Women, in the Wars, by Accidents, at Sea, in travelling, by the Hand of Justice, &c. yet Things are brought to that Pass, that every Woman may have a Husband; and tho' a Man be prolific 40 Years, and a Woman only 25, which makes the Males as 560 to 325 Females, yet the later Marriages of the Men, and the above Causes, reduce all to an Equality. Though there are more Men, yet 'tis often said, that Physicians have two Female Patients to one Male; which may be true in Cities, but not in the Country, where Women live regularly and temperately, and have much Labour and Exercise; but the City Women having weaker or worse *Stamina*, and less of those Assurances, are more liable to the Green-sickness, Cachexy, breed with more Symptoms, have

have frequenter Abortions, Hyſtericks, Obſtructions, &c. yet fewer Women die than Men, theſe Diſeaſes being moſtly cured, and Men being then more intemperate, more of them died by their Vices, and more expoſed to Accidents; thus, tho' more of them are born, more of them die. Tho' ſeveral Men went out of *London* to the Civil Wars, yet their Places were immediately ſupplied out of the Country; the ſame as happened after the Plagues, both which leſſened not the Inhabitants of the City, but of the Country. The Plurality of Males is the Reaſon of making Eunuchs, where Polygamy is allowed, theſe being uſeleſs for Generation. But Caſtration of Brute Males, is both to meliorate the Fleſh of ſuch as are for Food, and to prevent Sterility of the whole, by promiſcuous Copulation. In Popiſh Countries where Caſtration is prohibited, yet Celibacy is allowed; yea, Women forced into Nunneries, which is worſe than Polygamy and Caſtration; for in the former, Females either admit no Men at all, or they do it in Whoredom with more than one, both which hinder Conception, or Abortion is procured, or ſecret Murder practiſed, all which turn to the ſame Account. Hence appears the Neceſſity and Execution of a ſtrict Law againſt Fornication and Adultery. Hence powerful and rich Princes and States ſhould advance their own Intereſt, and promote Religion, by encouraging Marriage, and hindering Licentiousneſs. The Overplus of Males putting a Bar to Polygamy is a Bleſſing to Mankind, for then Women could

could not live in that Parity and Expence with their Husbands as now they do: and this not because a Man could not reduce himself and them to live at a third or half Expence; but because to keep himself and them quiet, he must keep them in greater Awe, and less Splendor, and so keep them as low as he pleases.

Chap. 9. of the Growth of the City. In 1593. died in the 97 Parishes within the Walls, and 16 without (besides 421 of the Plague) 3508; and in 94. 3478, besides 29 of the Plague: in both Years died 6986. 20 Years after died in the same Parishes, *viz.* in 1614. and 15. 12110; so that in 20 Years they increased from 7 to 12. In the next Years, *viz.* 34. and 35. were buried 15625, which is much more than double the first, *viz.* 6986. So that in 20 Years they have increased from 23 to 52. But the 16 Parishes being without the Walls, and having more Room, have increased faster than the 97 Parishes within. For in 1620. the 97 Parishes buried 2726. and in 1660. only 3098, or increased from 9 to 10. In 1604. died in these Parishes 1518. and in 1660. 3098, which is double: or more justly, these Parishes are increased from 10 to 17 in 54 Years. But to find truly from whence a great Part of this Growth arises, we are to consider, that in 1605. were buried in the 16 Out-Parishes 2974, and in 1659. 6988: so that in 54 Years they are grown from 3 to 7. And in the 8 Out-Parishes died in 1605. 960. and in 1659. 4301. which is more than from 1 to 4. In 1605. was buried in the whole 5948, and in

in 1659. 14720; about 2 to 5. ---- Then he gives the Parishes, both within and without the Walls, that have contributed most to this Augmentation; and observes, that the City moves Westward; and would do so much faster, did not the *Royal Exchange* and the *Bridge* prevent it, some Streets Eastward having lost their Trade already. The Reasons are; the Court being at *Westminster*, and many of the old Streets unfit for Coaches, has occasioned the building of broader Streets. There is a greater Consumption of Goods at the West than East End of the Town; and the cramming up all the void Spaces within the Walls with Houses, to the Prejudice of Air and Light, caused People to build new Houses. Old wooden, dark Houses are gone to Decay, and new ones built in their stead; and that *Ludgate* and *Newgate* are too narrow a Throat in and out of the City.

His 10th Chapter is on the Inequality of Parishes, evident from their respective Burials; for in *Cripplegate* were buried 1191, and only 12 in *Trinity Minories*; *St. Saviour's Southwark* and *Botolph Bishopsgate* are of a middle Size, each burying 5 or 600 hundred yearly. So that the 1st is to the 2d of these as 1 to 100, and 200 times as big as several others within the City. Wherefore it would be better to have the Parishes more equal, and of a middle Size, as to bury 100 and 150 *per Annum*; they would be easier to preach in, and Churchwardens would discharge their Duty better. *St. Paul's* he thinks fitter for an Amphitheatre than a Church, as there is now no Occasion

for grand Processions, or saying 50 Masses at a time in it.

His 11th Chapter is on the Number of Inhabitants, which he took several Ways to expstate. The first was, if there were 2000000 People more in *London* than before 1625. then there must be 6 or 7000000 in all; but finding that not above 15000 died yearly, then only 1 of 400 died annually; and of the 15000, 5000 were Infants, Abortives, and Aged: and that between 10 and 60 scarce 10000 died yearly; which multiplied by 10, (as it is an even Lay whether any Man lives 10 Years, or one of 10 dies yearly) it makes 100000 in all, or one sixtieth Part of what was before suggested. Then he considered, that the Number of Child-bearing Women was about double the Births; such Women, one with another, having scarce more than a Birth every two Years. When the Registers were well kept, he found the Births to be somewhat fewer than the Burials; the Burials, at a Medium, were 13000, the Births 12000; therefore the Number of teeming Women was 24000, and that there was twice as many Families as of such Women, or twice as many between 16 and 76 as between 16 and 40; then the whole Number of Families would be 48000; and that there was eight Persons in a Family, one with another. Multiply 48000 by 8, the Product is 384000. He found by counting the Number of Families in some Parishes within the Walls, that 3 out of 11 Families died yearly; therefore as 13000 died in the whole, there must be

be 48000 Families. He thinks his Account of the Train-Bands and auxiliary Soldiers justifies this Account. Lastly, he took the Map of *London*, and supposing 100 Yards square might contain 54 Families, and every House Front to be 20 Feet; for on two Sides of the said Square will be 100 Yards of Housing on each, and on two other Sides 80 each, in all 360 Yards, or 54 Families, on each Square, of which there are 220 within the Walls, making in all 11880 Families within the Walls; but as 3200 die yearly within the Walls, and 13000 in the whole, then the Housing within the Walls is one fourth Part of the whole; therefore there are 47520 Families in and about *London*. Having determined the Inhabitants of *London* to be 384000, the 199112 are Males, and 184888 are Females; and supposing from the Table of Decades, (see the last but two in the Book) that there are 199112 Males, and the Number between 16 and 56 Years of Age being 34, it follows that 34 in a hundred of all the Males in *London* are fit for fighting Men, *i. e.* 67694, or near 70000; to which add one fifth for *Westminster*, *Stepney*, *Lambeth*, *viz.* 13539, they make in all 81233 fighting Men. Then he inquires in how long time *London* will double itself, which he says in about 7 Years, or (Plagues considered) 8, since one eighth of the whole is Breeders; for in 8 times 8 Years, the whole People shall double without the Access of Foreigners. Accordingly he reckons one Couple, *viz.* *Adam* and *Eve*, doubling themselves every

64 Years of the 5610 of the World, according to Scripture, will produce far more People than are in it.

Chap. 12. of the Country Bills : Wherefrom he observes, that every Wedding, one with another, produces four Children. That Males are to Females as 16 to 15, and in *London* as 14 to 13 ; but in other Places, perhaps, there may be a Variation of these Proportions. In 90 Years, Burials of Males and Females were equal in *Hantshire* Parish, and in the 19 Decades they differed not one hundredth Part; and there are Decades where Births of Males and Females differ much. That during the said 90 Years, one Year with another, have not born yearly 12 more than were buried, though the Inhabitants are computed to be 2700, and has not now in it 300 more Souls than it had 90 Years ago; therefore the 1059 that were born more than buried, have contributed to the Increase of *London*. If other Places send one third of their Increase to *London*, and if there are 14 times as many People in *England* as in *London*, then they send 6000 yearly to *London*, which will increase their Burials about 200 yearly, and will answer the above Increase; and 400 went out of this Country Parish to *America* in 40 Years time. Taking them at a Medium, there have been 5 Baptisms to 4 Burials. The Accounts of this Parish confirm the healthiest Years to be the fruitfulest. There is a wider Disproportion between the greatest and least Mortalities in the Country, than in the City, viz. 5 to 1; for in *London* (except

(except from the Plague) they are now double : but in the Country, Christmings are subject both to good and bad Influences, the Fumes, Stenches, and Smells of London so medicate the Air about it, as if they were with and opposed the bad Influence of the Air. He computes this Parish to contain 2800 Souls, and that 1 out of 30 die yearly, but in London 1 of 32. So that the Country is healthier, fewer die in it, and that they die more gradually in London, and less so in the Country. London, he thinks, is more unhealthy now than formerly, because more populous, and more Sea-coal burnt in it; and that therefore is more unhealthy than other Places, from the Suffocation caused by its Coal. This Country Parish cannot continue itself as less than 200 Years; but London requires a longer Time, without a Supply from the Country.

In the Conclusion, he makes a short Recapitulation, and shews what further Use such Calculations may serve; as how to procure laudable Peace and Plenty, without one living another: This consists in understanding the Lands and Hands of the Territory to be governed, according to their intrinsic and accidental Differences; for instance, to know the geometrical Content, Figure, and Situation of all the Lands of England, especially according to its natural, permanent, and conspicuous Bounds; as how much Hay every Sort of Meadow will bear, how many Cattle the Weight of each Sort will feed, what Quantity of Grain

the same Acre will bear yearly at a Medium, for what Use each Soil is fittest. These are intrinsic Value. The extrinsic is, why a Parcel of Land lying near a large rich Town shall be worth double another Parcel of the same Goodness, but farther off. How many People there are of each Sex, State, Age, Religion, Trade, Rank, or Degree, &c. By which Means Trade and Government may be made more certain and regular: for if the People were known, the Consumption they would make might be known, so as Trade might not be expected where it is impossible; for if the Inhabitants are thin, and neither work themselves, nor employ others, they are unfit Subjects of Trade, let their other Conveniencies be what they will. Besides, if all these Things were fully known, it would appear how few of the People work upon necessary Labours and Callings, (and these chiefly of the poor and middle Sort) how many Women and Children do nothing, only learn to spend what others get; how many are meer Voluptuaries, and meer Gamesters by Trade; how many Aged, Sick, and Infirm; how many Divines, Lawyers, Physicians, Apothecaries, and other Branches of, or Pretenders to the Business; how many Soldiers; how many by Ministeries of Vice and Sin; how many by Trades of meer Pleasure and Ornament; how many in an idle, lazy Way of Attendance on others. On the contrary, how few are employed in working necessary Food and Covering; and of speculative Men, how few study Nature and Things. All these Things are necessary

cessary to good, certain, and easy Government, and to balance Parties and Factions in Church and State. But for whom this Knowledge is necessary, he determines not.

In the Appendix, he says, *Dublin* burying 20 weekly, and *London* 300, and the Inhabitants of *London* 450000, and of *Dublin* 30000, then the former is three times as big as the latter. Again, the Defect of the Christenings is the same there as in *London*, and probably from the same Causes. Here he puts in the *Cranebrook* and *Trenton* Bills, which he thinks agree with the *Hantsire* Bill; and that the Weddings in 48. and 49. were very few, from the People's Displeasure at beheading the King. He gives the Number of Men, Women, and Children found within the City and Liberties in 1631; by which he owns he had computed too many Souls before. Then he gives the Numbers that died in the several Years of the Plague at *Amsterdam*, viz. in 11 Years, viz. 109364. The Town has 11 Burying-places, besides the Hospital and Pest-house, 257 Streets and Lanes, 43 Burgways, that in 7 Years, viz. from 1617. to 24. were baptized in the reformed Church 52537, buried 32532, besides the christened in other Congregations. 16430 Marriages were published. Then he gives us the Increase and Decrease of that Plague therein 1664; then an Account of the Mortalities of several great Cities in the World; and observes from them, that both Northern and Southern Countries are infested with great Plagues; but they are severer, begin and end

more suddenly in the latter than former. That it should be inquired, whether the Plague that began in 1652. and lasted to 57. in its Perambulation, was the same, or several Diseases, in each Place. That the Plague is longer in rising to its Height than in decreasing, being as 3 to 2. That of the above 4 great Plagues of *London*, the Height was not always in the same Month; its Continuance was of several Durations, only 5 times the Diseased increased to double of what it was the Week before. In his Postscript he observes, that from the *Paris* Bills of *December* 1672. the Protestants were to the Catholics as 1 to 65. That City Buryings in 1672. were 17584, Christenings 18427; much the same, he says, with the Difference that was in the *London* Bills before the Schism. *Paris*, he thinks, is above one fourth greater than *London*, exclusive of *Westminster*, and the 7th Canton, or 5 Country Parishes. Thus ends his Abstract, whose Scheme in the Appendix *Davenant* pursues. *Graunt's* Want of Information, and Plenty of Vouchers, have run him into many very random Guessees.

Sir *William Petty*, in his Essay (of 1686.) to prove that *London* has more People and Housing than both *Paris* and *Rouen* together, says, that the Medium of the Burials at *London* in 1683, 84, 85. (wherein there was no extraordinary Sickneſs, and Christenings and Burials corresponded as usual in other Years) was 22337; and the Medium of the *Paris* Bills for 82, 83, 84. (the last whereof, by comparing it

it with the Christenings, appears to be very sickly) is 19887.---- By comparing the Trade and Customs of *Rouen* and *Bristol*, the latter seems as populous; *Dublin* appears to have more Chimneys than it, and consequently more People: yet in 1682 (being a sickly Year) it buried 2263: *Paris* and *Dublin* Bills added make 22150, or about 187 *per Annum* fewer than *London*. But if we subtract the 3000 that unnecessarily die yearly in the *Hospital de Dieu* out of the *Paris* Bills, the Assertion is stronger. In 1666 were burnt in *London* 13000 Houses, or one fifth of the whole Houses, which were that Year above 65000; and the *London* Burials, at a Medium, are increased one third between 66. and 86. The Total of the Houses in 86. must be about 87000; for in 82. they were 84000. *Morery*, who makes *Paris* the greatest City in the World, reckons only 50000 Houses in it, and others much less; nor are there full 7000 Houses in *Dublin*; add both together, they make but 57000, but *London* has 87000: thus the two others are to it as 6 to 9. The Shipping and foreign Trade of *London*, by a general Estimate, far exceed those of *Paris* and *Rouen*. As to the Courts of Justice, they affect all *England* and *Wales* 7000000 of People; those of *Paris* extend not near so far; nor have the Lawyers of *Paris* any thing near the Number, Wealth, and stately Buildings of those of *London*; the People of *Paris* be to those of *London* as 6 to 7, the Buildi 6 to 9: then the latter are not so crowded up as the former. The Hosp

London are better and more desirable than those of *Paris*; for out of these of the latter die 2 to 15, of the former 2 of 16 of the worst; and yet one fiftieth Part of the whole die out of the *London* Hospitals, and 2 of 5, or twenty times that Number, die out of the *Paris* Hospitals, which are of the same Kind; or these in *London* that chuse rather to lie sick in the Hospitals than in their own Houses, are to the like People of *Paris* as 1 to 20: which shews which of the two is poorest: And the Difference of them that die in *Paris* and *London* Hospitals, shews which have the best Air, Cure, and Care. If *Paris* were the greatest City in the World, no notice need be taken of *Pequin*, *Dely*, and *Agra*, nor of *Constantinople* and *Grand Cairo*; in the last of which, it is said, 73000, or two fifths of the People, died in ten, Weeks; but in *London* in 1665. only one fifth of the People died, viz. 97000; which shews the latter to be far the greater City. As to *Constantinople*, it is said 1500 die a Day of the Plague; in *London* in 1665. died 1200 a Day; yet in the whole died only one fifth of the People: But there, and in all the Eastern Countries, and even in *Spain* and *Italy*, the Plague carries two fifths, or a half, or more. Thus he concludes *London* to be the greatest City in the World. In another Essay in the same Year, he proves *London* as large as *Paris* and *Rome* both; the latter containing then 119000 Souls, besides *Jews*. And that in 85. *London* buried 23222, and *Amsterdam* 645; therefore *London* is four times as big. In another

other he proves, that in the *Hotel de Dieu* in *Paris*, above 3500 die yearly by ill Accommodations, which at 60 *l.* *per* Head, the Price of *Algier* Slaves, amounts to 210360 *l.* Sterling, 2524320 *French* Livres dead Loss to *France*, and might be saved yearly by good Accommodations.

An ABSTRACT of Part of DAVENANT'S Essay.

HE says, that the first Colony of Inhabitants coming into *England* about 800 Years after the Flood, and 1500 Years before *Christ*, we may suppose to be between 100 and 1000, when there might be only 4 or 5000000 People in the World. That at the *Romans* first Invasion of this Island 55 Years before *Christ*, the People here, from that Colony, might be increased to 360000; and at our *Saviour's* Birth 400000; and at the *Norman* Conquest, *A. D.* 1066. they might be 2000000, or half the Number that was in 1698. So that *England* doubles its Inhabitants in about 435 Years. The next Doubling would be in about 600 Years, *viz.* *A. D.* 2300. when the People will be about 11,000000.--- 2. Whereas the yearly Increase of People in *England* is 20000, yet subtracting 4000 yearly for extraordinary Mortalities, and 3500 for foreign and civil Wars,

and 2500 for the Plantations, then the next yearly Increase will be 9000 Souls. 3. That the Country yearly, by Procreation, increases 20000, and Cities and Towns (*London* excluded) 2000; but *London* and the Bills of Mortality decrease yearly 2000, for which it demands the like yearly Supply out of the Country to prevent its Decrease, besides a yearly Supply of 3000 more for Increase. ---- 4. By the *Assessments* on Births, Marriages, and Funerals, and the *Collectors* Returns on the *Pole-Books* thereon, it appears that in *London*, and within the Bills of Mortality, the People are 530000: Then 1 of 26 is married yearly, in all 5000, each Couple producing 4 Children; and that 1 of 26 $\frac{1}{2}$ being yearly born, the Births are 20000. The Burials are 1 of 24.1. in all 22000. In Cities and Market-towns, the People being 830,000, 1 of 128 being married yearly, the annual Weddings are 6300, each Wedding producing 4.5 Children: and 1 in 28 $\frac{1}{2}$ being born, in all 30600; and 1 of 30.4 being buried, the yearly Buryings are 28600. In Villages and Hamlets, the People being 4010000, one of each 141 being wedded, the yearly Marriages will be 29200, each Couple producing 4.8 Children; and one in 29 $\frac{1}{2}$ being born yearly, the whole Births are 139400. Whence he observes, that in 10000 co-existing Persons, there are 71 or 72 Marriages in the Country, producing 343 Children; 78 Weddings in Towns, producing 351 Children: 94 Weddings in *London* produces fewer Children than in the Country; yet *London* having more Breeders

Breeders than other great Towns, is more fruitful, and the Towns are more prolific than the Country. Were *Londoners* as long-lived as Peasants, the City would increase much faster than the Country. 3. Each *London* Wedding produces fewer Children than the Country, from Fornications and Adulteries being more fashionable, from their greater Luxury and Intemperance, from greater Intenseness to Business, from the Unhealthiness of the Smoke of Sea-coal, from a greater Inequality between the Ages of Husbands and Wives, from their not living so long as in the Country, from the frequently necessary Absence of many Husbands from their Wives.

He says, that in *London*, and the Bills of Mortality, Males are to Females as 10 to 13. In other Cities and Towns they are 8 to 9. In Villages and Hamlets as 100 to 99; in all as 27 to 28. --- That Husbands and Wives are to the rest as $34\frac{1}{2}$ per Cent. Widowers as $1\frac{1}{2}$ per Cent. Widows as $4\frac{1}{2}$ per Cent. Children are 45 per Cent. Servants $10\frac{1}{2}$ per Cent. Sojourners and single Persons 4 per Cent. Thus in the general, but particularly in *London*, and within the Bills of Mortality, Husbands and Wives are 37 per Cent. Widowers 2 per Cent. Widows 7 per Cent. Children 33 per Cent. Sojourners 8 per Cent. In other Cities and Towns Husbands and Wives are 36 per Cent. Widowers 2 per Cent. Widows 6 per Cent. Children 40 per Cent. Servants 11 per Cent. Sojourners 5 per Cent. In the Country Husbands and Wives 34 per Cent. Widowers $1\frac{1}{2}$ per Cent. Widows $4\frac{1}{2}$ per Cent.

Cent. Children 47 *per Cent.* Servants 10 *per Cent.* Sojourners 3 *per Cent.* ---- Now, says he, supposing the People of *England* to be 5500000, the yearly Births 190000, the sundry Ages are, these under 1 Year old are 170000; under 5 Years old 820000; under 10 Years old 1520000; under 16 Years old, 2240000; above 16 Years old, 3260000; above 21 Years old, 2700000; above 25 Years old, 2400000; above 60 Years old, 600000, whereof are Males 270,000, Females 330000. ---- From which Scheme he observes, that the Number of Communicants in all, or these above 16 Years old, is 3260000. 2. The Number of fighting Men between 16 and 60, is 1308000. ---- That Batchelors being about 28 *per Cent.* of the whole, whereof of these under 15 Years old, are about 25½ *per Cent.* that Maidens are about 28 *per Cent.* of the whole, whereof under 25 are about 26½ *per Cent.* Above 25 are 25 *per Cent.* That the Males and Females in the Kingdom in general are aged, one with another, 27½ Years old ---- 4. That in the Kingdom in general there are near as many People living, under 20 Years of Age, as above it, whereof half of the Males are under 19, and half of the Females under 21 Years old.

From another Scheme he shews, that such as have a Dependence, have greatly the Majority of the other Part. The first, *viz.* Seamen, Soldiers, Labourers, Servants, Cottagers, Paupers, Vagrants, with all their Families, are to the Nobility, Gentry, Officers, Merchants, Lawyers, Clergy, Freeholders, Farmers, Persons

sons in liberal Arts and Sciences, Shopkeepers, Tradesmen, Handycraftsmen, naval Officers, with all their Families and Dependants, as 2825000 to 2675520--- He again divides the People into two Classes, *viz.* such as increase the Wealth of the Kingdom, and such as decrease it; the first are 2675520, the second are 2825000 Heads or Souls. The first, from Land, Art, and Industry, both maintain themselves, and add yearly something to the general Stock. The second are Cottagers and their Families, Aged, Sick, Weak, Beggars, and Vagrants. In 1685 it appeared from the Hearth-Money Books, that in the whole Kingdom were 1300000 Houses, whereof 500000 were Cottages. Hence he infers, 1. That Liberty should be preserved on a right Foot; for this keeps our own Inhabitants at home with us, and invites Strangers to us. 2. That Men should be encouraged to marry for Procreation. 3. Marriages being yearly 1 out of 134, it is not a due Proportion, since so few of our Males perish by War, or other Accidents; and as many of both Sexes as continue unmarried after they are come to ripe Years, are a dead Loss, every Birth being as so much certain Treasure to the Nation. 4. From this Scheme on the Ranks, Degrees, &c. of the People, he shews their Error who calculate from the Plenty, Wealth, and Splendor they see in rich Cities and great Towns, and from this make a false Estimate of the Remainder, supposing Taxes chiefly to arise from the Gentry and better Sort; but

but these are only a small Part of the whole Body. Hence either the Public runs into Debt, or the Poor being oppressed, raise insufferable Clamours against all Duties on the Consumption of large Products, falling heavily on the Poor. Thus far *Davenant* on *King's* Calculations. His other Schemes are a meer *Postulata*, to answer *Graunt's* proposed Queries in his Conclusion.

Derham says, the special Management of the Recruits and Decays of Mankind, so equally all the World over, challenges our particular Observation. After the *Creation*, and *Noah's* Flood, the Longevity of Man was absolutely necessary for the more speedy peopling the World, and for a special Instance of the Divine Providence herein. In the former Period, most of these on Record lived 900 Years, or above; but after the latter, none except *Shem* exceeded 500, and only his three Sons, in that first Century, came near that Age. In the next post-diluvian Century, none reached 240; in the third Century, *Terah* only reached 200; for then the World, the Eastern especially, was pretty well peopled; they had built Cities, and cantoned themselves into distinct Nations and Societies under their respective Leaders, and were able to wage War one against another.--- When the World was pretty well peopled, there was a special Providence in reducing the common Age of Mankind, before the Flood, to 120 Years; after it, in *Moses's* Time, to 70 or 80, (in both these the Texts are egregiously mis-

misapplied.) By this Means the peopled World is kept at a convenient Stay, neither too full nor too empty; for if the Generality of Men were to live either to the ante-diluvian Ages, or post-diluvian, for the first two or three Centuries, the World would be over-stockt with People; or were Men to live only ten, twenty, or thirty Years, then their Decay would be too fast; but by this middle Rate, the Balance is nearly even, and Life and Death keep such an equal Pace, as is an evident Proof of the Divine Management. Sacred and profane History agree, that since the World was peopled, the Age of Man keeps much the same; some rare Examples of long Life may be met with in most Countries.

From our *European* Accounts, (and perhaps the same all over the Globe) there appears to be a certain Rate or Proportion in the Propagation of Mankind. Such a Number marry; so many are born; and such a Number die, in Proportion to the People in a Nation or Country. It is remarkable that the Births of Males and Females are near equal, and that a few more are born than die; which is a Provision for the extraordinary Emergencies and Occasions of the World, as the Unhealthiness of some Places, where Death out-runs Life; to make up the Ravages of Plagues, Diseases, Depredations of War and the Seas; and to afford Transports to unpeopled Colonies. Extraordinary Expences of People are either to pun-
 them for their Sins, or keep the Balance

From a Table he gives of eight Places in *England*, and five beyond Sea, he observes, that about 1 in 104 marry; each Marriage, one with another, produces about four Children: he reckons *Graunt's* Proportion of 14 Males to 13 Females to be just. That Deaths in *England*, in general, are to Births as 1 to $1\frac{1}{10}$; in Cities and Market-towns as 1 to $1\frac{1}{10}$; in *Paris* as $1\frac{1}{2}$ to 1. See his *Physiology*, p. 175, &c. His other Remarks are only Quotations.

Table

Table XX.

| Year | | 1715 | | 1716 | | 1717 | | 1718 | | 1719 | |
|--------|-----|------|-----|------|-----|------|-----|------|-----|------|--|
| Apr. | 11 | 6 | 16 | 10 | 9 | 11 | 14 | 15 | 18 | 11 | |
| May | 9 | 9 | 9 | 10 | 21 | 8 | 19 | 11 | 15 | 14 | |
| June | 14 | 13 | 11 | 10 | 11 | 14 | 15 | 5 | 11 | 10 | |
| July | 20 | 28 | 12 | 4 | 5 | 15 | 5 | 11 | 4 | 13 | |
| Aug. | 29 | 22 | 8 | 4 | 5 | 7 | 12 | 4 | 5 | 5 | |
| Sept. | 25 | 21 | 7 | 6 | 8 | 7 | 8 | 9 | 7 | 5 | |
| Octob. | 26 | 36 | 10 | 7 | 8 | 5 | 11 | 6 | 9 | 8 | |
| Nov. | 8 | 15 | 5 | 7 | 8 | 6 | 9 | 13 | 10 | 6 | |
| Dec. | 11 | 10 | 13 | 6 | 9 | 7 | 20 | 7 | 10 | 11 | |
| Jan. | 12 | 18 | 15 | 14 | 8 | 7 | 18 | 19 | 10 | 8 | |
| Febr. | 14 | 9 | 14 | 15 | 6 | 8 | 20 | 18 | 6 | 8 | |
| Mar. | 16 | 14 | 25 | 20 | 8 | 7 | 20 | 12 | 16 | 10 | |
| Total | 195 | 201 | 145 | 113 | 106 | 102 | 171 | 131 | 121 | 109 | |

| Year | | 1720 | | 1721 | | 1722 | | 1723 | | 1724 | |
|--------|-----|------|-----|------|-----|------|-----|------|-----|------|--|
| Apr. | 12 | 6 | 14 | 9 | 12 | 19 | 52 | 44 | 21 | 17 | |
| May | 12 | 10 | 16 | 18 | 13 | 13 | 55 | 57 | 13 | 10 | |
| June | 12 | 7 | 17 | 13 | 6 | 7 | 29 | 23 | 13 | 14 | |
| July | 12 | 2 | 11 | 11 | 9 | 16 | 26 | 19 | 12 | 6 | |
| Aug. | 11 | 10 | 11 | 14 | 9 | 9 | 21 | 17 | 10 | 9 | |
| Sept. | 5 | 11 | 10 | 11 | 15 | 14 | 16 | 10 | 14 | 6 | |
| Octob. | 7 | 10 | 14 | 6 | 12 | 10 | 15 | 14 | 8 | 5 | |
| Nov. | 13 | 16 | 13 | 15 | 10 | 8 | 14 | 13 | 15 | 9 | |
| Dec. | 20 | 7 | 13 | 16 | 14 | 8 | 21 | 14 | 11 | 12 | |
| Jan. | 8 | 1 | 14 | 16 | 11 | 29 | 9 | 15 | 15 | 13 | |
| Febr. | 19 | 13 | 14 | 13 | 15 | 29 | 19 | 10 | 11 | 14 | |
| Mar. | 12 | 14 | 21 | 10 | 47 | 41 | 14 | 24 | 14 | 9 | |
| Total | 143 | 117 | 168 | 157 | 173 | 203 | 201 | 260 | 157 | 124 | |

| | Year | | 1725 | | 1726 | | 1727 | | 1728 | | 1729 | |
|--------|------|-----|------|-----|------|-----|------|-----|------|-----|------|--|
| Apr. | 25 | 14 | 17 | 14 | 18 | 12 | 20 | 12 | 35 | 24 | | |
| May | 13 | 17 | 22 | 13 | 12 | 7 | 14 | 9 | 45 | 23 | | |
| June | 13 | 14 | 11 | 14 | 12 | 5 | 16 | 6 | 19 | 29 | | |
| July | 11 | 7 | 19 | 23 | 7 | 8 | 13 | 12 | 18 | 10 | | |
| Aug. | 8 | 8 | 26 | 27 | 10 | 10 | 15 | 11 | 9 | 5 | | |
| Sept. | 10 | 10 | 30 | 29 | 13 | 6 | 19 | 15 | 12 | 9 | | |
| Octob. | 6 | 12 | 17 | 21 | 7 | 13 | 14 | 15 | 19 | 18 | | |
| Nov. | 17 | 10 | 14 | 14 | 8 | 13 | 23 | 18 | 18 | 16 | | |
| Dec. | 15 | 16 | 9 | 8 | 20 | 10 | 22 | 28 | 19 | 10 | | |
| Jan. | 18 | 19 | 9 | 12 | 13 | 19 | 9 | 50 | 16 | 15 | | |
| Feb. | 15 | 14 | 11 | 12 | 21 | 12 | 39 | 36 | 22 | 11 | | |
| Mar. | 16 | 12 | 17 | 16 | 21 | 12 | 39 | 37 | 28 | 0 | | |
| Total | 169 | 153 | 222 | 203 | 12 | 127 | 263 | 249 | 240 | 190 | | |

| Year | | 1730 | | 1731 | | 1732 | | 1733 | | 1734 | |
|--------|-----|------|-----|------|-----|------|-----|------|-----|------|--|
| Apr. | 21 | 19 | 10 | 17 | 12 | 21 | 21 | 28 | 13 | 8 | |
| May | 12 | 12 | 16 | 9 | 16 | 18 | 20 | 16 | 14 | 14 | |
| June | 12 | 14 | 15 | 7 | 13 | 12 | 10 | 11 | 22 | 12 | |
| July | 18 | 17 | 6 | 9 | 11 | 12 | 16 | 7 | 14 | 13 | |
| Aug. | 12 | 11 | 7 | 9 | 9 | 7 | 15 | 8 | 18 | 12 | |
| Sept. | 18 | 10 | 8 | 7 | 6 | 10 | 11 | 14 | 14 | 7 | |
| Octob. | 12 | 15 | 10 | 13 | 13 | 8 | 10 | 10 | 14 | 11 | |
| Nov. | 8 | 14 | 13 | 13 | 12 | 8 | 11 | 10 | 10 | 13 | |
| Dec. | 16 | 14 | 13 | 13 | 24 | 12 | 15 | 7 | 18 | 19 | |
| Jan. | 17 | 21 | 14 | 5 | 21 | 21 | 14 | 11 | 21 | 10 | |
| Feb. | 13 | 18 | 11 | 10 | 30 | 35 | 19 | 12 | 21 | 19 | |
| Mar. | 12 | 9 | 14 | 12 | 22 | 22 | 14 | 17 | 20 | 17 | |
| Total | 171 | 174 | 146 | 128 | 199 | 186 | 175 | 151 | 197 | 152 | |

| Year | 1735 | | 1736 | | 1737 | | 1738 | | 1739 | |
|--------|------|-----|------|-----|------|-----|------|-----|------|-----|
| Apr. | 15 | 15 | 35 | 36 | 16 | 17 | 11 | 20 | 13 | 14 |
| May | 20 | 19 | 19 | 29 | 19 | 16 | 28 | 25 | 13 | 21 |
| June | 14 | 12 | 11 | 17 | 13 | 29 | 17 | 17 | 11 | 10 |
| July | 15 | 15 | 16 | 10 | 21 | 17 | 20 | 27 | 12 | 10 |
| Aug. | 10 | 6 | 8 | 5 | 21 | 18 | 24 | 23 | 17 | 11 |
| Sept. | 12 | 11 | 17 | 7 | 16 | 16 | 19 | 19 | 14 | 9 |
| Octob. | 11 | 17 | 12 | 7 | 23 | 19 | 15 | 20 | 8 | 5 |
| Nov. | 24 | 25 | 11 | 17 | 23 | 27 | 13 | 10 | 16 | 14 |
| Dec. | 18 | 14 | 15 | 25 | 27 | 17 | 15 | 16 | 21 | 10 |
| Jan. | 17 | 15 | 18 | 29 | 20 | 22 | 15 | 15 | 18 | 27 |
| Feb. | 19 | 12 | 20 | 12 | 14 | 13 | 31 | 25 | 22 | 25 |
| Mar. | 33 | 34 | 23 | 14 | 25 | 22 | 25 | 23 | 15 | 14 |
| Total | 205 | 200 | 209 | 258 | 233 | 233 | 240 | 180 | 180 | 170 |

| Year | 1740 | | 1741 | | 1742 | | 1743 | | 1744 | | 1745 | |
|--------|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|
| Apr. | 18 | 19 | 37 | 23 | 29 | 23 | 37 | 30 | 38 | 34 | 20 | 23 |
| May | 19 | 18 | 46 | 28 | 45 | 29 | 28 | 40 | 25 | 32 | 21 | 22 |
| June | 12 | 15 | 35 | 48 | 25 | 11 | 14 | 17 | 24 | 32 | 10 | 19 |
| July | 11 | 7 | 31 | 33 | 17 | 15 | 16 | 12 | 24 | 22 | 10 | 16 |
| Aug. | 15 | 24 | 33 | 22 | 9 | 20 | 19 | 12 | 16 | 19 | 27 | 13 |
| Sept. | 20 | 18 | 26 | 31 | 17 | 5 | 25 | 19 | 10 | 18 | 20 | 13 |
| Octob. | 24 | 17 | 31 | 34 | 23 | 16 | 13 | 15 | 14 | 10 | 22 | 22 |
| Nov. | 19 | 17 | 31 | 43 | 20 | 9 | 18 | 27 | 16 | 18 | 18 | 13 |
| Dec. | 20 | 23 | 45 | 37 | 14 | 15 | 20 | 9 | 15 | 20 | 16 | 20 |
| Jan. | 28 | 34 | 55 | 46 | 15 | 15 | 24 | 18 | 13 | 15 | 28 | 28 |
| Febr. | 24 | 33 | 32 | 33 | 19 | 19 | 19 | 24 | 26 | 10 | 16 | 24 |
| Mar. | 34 | 39 | 43 | 40 | 10 | 13 | 24 | 27 | 17 | 16 | 25 | 23 |
| Total | 244 | 259 | 445 | 418 | 249 | 190 | 257 | 250 | 238 | 255 | 243 | 220 |

Some

Some cursory Observations on a Parish, whose Registers I had more Time and Opportunity to peruse.

THE 31 Years of monthly Funerals for this Parish, in the Table, commence with the learned and ingenious Dr. *Winteringham's* History of Diseases for *York* and about it. Such Tables answer either some special or common Uses. By the first, I intend such Purposes as Bills of Mortality have not been ordinarily applied to. By the last, the answering of such Questions as are mostly the Effect of Curiosity.

As to the first, here we see, 1. The greater or lesser Frequency and Mortality of each Epidemic mentioned in the History; as the Havock of the fatal Years 1723, 27, 28, and 41; the great Disparity between the Riseness and little Mortality of the general Catarrhs of 1725, 29, 37, 42, &c. Hereby we see the Lenity or Severity of any general or particular Epidemic past, since 1538. that Registers began first to be kept. --- 2. Hereby we trace the Progress of Epidemics, whether they move S. to N. or N. to S. E. to W. or W. to E. and so have an Opportunity to inquire into the Causes and Rise of an Epidemic, in that particular Quarter, whether brought from abroad, or begun there. --- 3. Hence we learn the Duration of past Epidemics from their first Appearance till they finish their Perambulation. So th
which raged in the 6th Decade of the 17th Century

Century, began in 1556 or 5, and had not finished its Rout before 58. That which began in 1621, raged to 24. That which rose in the Earl of *Effex's* Army in 1643. was not quite out before 46. That of 1722. lasted till 24. The Fevers that began in 26. were not out till 29. The late fatal Fever, which was brought into *Plymouth* by the *Canterbury* and *Ancaſter* Men of War in May 1740. had reached but a little beyond *Glasgow* in Aug. 42. - - - 4. As an Inference from the last, ſince (general Epidemics, Catarrhs, and Plague excepted) take two or three Years to begin and finiſh their Progreſs; this ſhews us that a Harmony and Correſpondence among Phyſicians at a diſtance muſt be of ſpecial Service to the Public, and ſave thouſands of Lives; ſince uninfected Places may obtain early Intelligence from the infected, of the particular ſucceſſful Method of Cure of that preſent Diſeaſe; if the ſame *Genus* of Epidemic requires quite different Courses at their ſundry Attacks. - - - 5. Tables of this Kind, collected from ſeveral Parts of the Iſland, would ſhow us in what Soils, Situations, and Buſineſſes of Life, &c. different Epidemics are more or leſs fatal; and where they appear ſeldom, or often; and to what Epidemics, or Endemics, each Place is moſt liable. - - - 6. Whether theſe Endemics, or Epidemics, keep any fixt Periods of Returns, or whether they depend on the Seasons, Air, Fruits of the Earth, Diſeaſes of Animals uſed in Diet, Trades, &c. — 7. Whether in Places of like Situation, Soil, Diet, Buſineſſes of Life, &c. theſe Diſeaſes are more
favour-

favourable or fatal, where no Medicines are used, or where they are not used. --- 8. This Method, if prudently and cautiously used, might be a Sort of Test, of the Success of the sundry Sectaries in Physic, viz. the *Hypocratic* or *Analogical*, (from Reason, Practice, and Observation) *Paracelsian*, *Sylvian*, *Wilisian*, *Hellmontian*, or *Mechanical*. --- 9. Perhaps hereby some tolerable Guess might be made of the Duration of Epidemics in any particular Place, from the Time of their Rise and Spread. *Ex. gr.* In this Parish for above nine Score Years past, I find, that such as begin from *June* to *Oct.* end in *Febr.* or *March*. Such as set in in *March*, seldom reach beyond the Summer *Solstice*; if the Disease exceeds this, it extends to the Autumnal *Equinox*, and in a very few rare Instances to the next *Vernal*. If it stops not here, we may expect most calamitous Times for 24 or 28 Months longer. These that commence in *Febr.* end in *May* or *June*; as these that begin in *Apr.* reach only to *June* or *July*. Such as set in in *Dec.* or *Jan.* sometimes stop in the latter end of *March*, but oftener reach to the next *Solstice*, or even to the End of *Aug.* Such as come in *Oct.* or *Nov.* are out in *March* or *April*. --- 10. Not only may we be helped to a tolerable Guess of their Duration in general but also of their Effects. For such as break out in *March* are most of all to be dreaded, not only on account of their long, but uncertain Continuance. Next to them are such as break out in *Dec.* or *Jan.* for they not only make great havock till the Spring, but join the

yearly Mortality of the Season. And if that which begins in *July* pass the Autumnal *Equinox*, it reaches to the *Vernal*. - - - 11. As the more healthy or sickly Seasons of the Year in this Parish, from 1561. to 1645. viz. 84 Years, *March* has been most fatal, *Apr.* and *Dec.* next, then *May* and *Febr.* for in these five Months died 5322. In *June, July, Aug. Sept. and Oct.* died 3921; so that the Mortality of the first five Months is to that of the last, near as 53 to 39. - - - 12. The most prolific Years are to the most sterile, near as 3 to 1. - - 13. Tables of Registers are the best Way to find with any Certainty the Effects of great and long Rains; as in 1712. 1713. Frosts, Droughts; as in 1714. 1723. Floods, Earthquakes, Comets, Eclipses, &c. - - - 14. This whole Parish lies dry, near the Mountains, has a Descent from all Parts, is hilly, mostly faces the E. and N.E. without Fens, Marshes, or stagnant Waters, yet well supplied with Rivers and good Springs. The Air from the Mountains is pure, thin, and fine. The Inhabitants are well served with the best and wholesomest of necessary Provisions, at moderate Prices. It is situated in the 53 Degree and 26 Min. of N. Latitude.

The common Observations on Bills of Mortality are as follow: From *Apr.* 1, 1561. to *Apr.* 1, 1587. both included, were christened Males 1476, Females 1392, both 2868; Weddings 739: Buried Males 1134, Females 97, both 2091. Hence we see, 1. That Christenings are to Buryings near as 28 to 20, or 7 to 5. - - - By comparing the Extracts of sundry Registers

gisters of Parishes on different Soils, Situations, &c. we come to the surest Proof of the Healthiness or Longevity of various Soils : For where the greatest Disproportion is between Christenings and Buryings in favour of the first, the healthier the Place, (supposing the Registers are faithfully kept, and all Christenings, Marriages, and Buryings registered) and no uncommon Resort of Strangers to the Place, nor Dispersion of its Inhabitants, as in Sea-Ports, Manufactures, &c. 2. The less Disparity there is between the Baptized and Married, the healthier the Place ; for there the fewest die in Infancy, Youth, and Celibacy ; if they export not themselves to other Places, or go into the Army, Navy, or Colonies. In such Places Epidemics must come seldomest, and be the mildest. - - - 2. Males born were then to Females born near as 14 to 13 ; but of this there is no Certainty ; for different Places have different Proportion, though the Males are still in greatest Number. - - - 3. The Death of Males is to that of Females near as 11 to 9 ; which Number of Males buried being so much superior to Males born, shews, 1. That the Number of Exports to *London*, Army, &c. was very small at that time. 2. That the Parish seems to be increasing by fresh Incomers to Trades, Service, &c. - - - 4. These Married were to the Christened above 2 to 4, the lesser half dying in Childhood, Celibacy, or exported themselves. 5. Each Wedding produces near four Children.

From 1715. *Apr.* 1. to 1742 *Apr.* 1. were baptized Males 5728, Females 5342 ; both

11070: Weddings 3254. Buried, Males 5455, Females 4859, both 10314. With these two Numbers the Register begins and ends; betwixt intervene 128 Years; during which time we see the Increase of the Inhabitants of the Parish, which must be judged from the Marriages and Buryings, not the Christenings; which last fall much short of Truth. The Buryings of the first 27 Years were 2091; of the last 10314: so that the Inhabitants are increased from 1 to 5, and above: For in the first all were buried at the Church, but now Dissenters have their Burying-Places, (though few except Quakers bury at them) whose Burials are not entered in the Church Register. 2. In the first Period, above 2 out of every 4 christened were married; in the last Period 13 out of 23 are married. --- 3. Again, 3254 Weddings produced 11070 Children, which is not $3\frac{1}{2}$ to each Wedding, or 7 to 2. --- 4. The Proportion of 3 to 2 between Christenings and Buryings in the first Period, is dwindled away in the second to about 11 to 10; which must either be from Abundance of Christenings not registered, or the Parish being more unhealthy, or a great Resort of fresh Incomers, or from all three. - - 5. The Disproportion between Males and Females is also lessened in this Period; for instead of 56 to 52, it is not 57 to 53: though the greatest part of Dissenters (Quakers excepted) have their Children entered in the public Registers, as well as others. Here is something like a Paradox, that the Difference between Christenings and Buryings, should now be

be small, as 1 in 11, instead of 12 to 8; and yet above half of the Christened are married as well now as before. For this there are two Reasons; 1. All Marriages are registered at the Church, but not all Christenings. 2. This shows a still greater Resort to the Place of Servants and Apprentices. --- 6. By comparing the first and last Parts of such old Registers, we have an Opportunity to try the Effects of Alterations in Diet, Dress, and other Variations of the Non-naturals, whether they are better or worse. --- 7. By the Perusal of sundry Registers, we may see whether, or what is the Difference as to Healthiness and Longevity, between People scattered in Hamlets and Villages, and Multitudes crowded together in Cities and great Towns, even on the same, or like Soils, Situations, and Manner of Life. Between such as live in an open and pent-up Air, loaded with Variety of Effluvia; between a laborious and idle life; between Luxury and plain simple Diet; between Temperance and Intemperance. --- The curious and ingenious Clerk of the Church had once the Curiosity to find the Number of Children out of every hundred that died under four Years old in this Parish. And in 1705. were baptized 314, of which 46 died the first Year, 13 the second, 16 the third, and 5 the 4th, in all 80. So that at the end of the 4th Year, near 75 of each hundred were alive. But by the *London Bills* for 1732, 33, 34, 35. out of 102191 buried, 50383 were under five Years old, which is near 25 out of 52. --- 2. In 1706. the same Clerk took an Account

of the Ages of those that were buried ; And this Year was far from being the most favourable to Children under 7 Years old ; died 82 : from 7 to 14 died 15 : from 15 to 21, 12 : from 21 to 28, 11 : from 29 to 35, 14 : from 35 to 42, 12 : 42 to 49, 6 : 49 to 56, 14 : 56 to 63, 7 : 63 to 70, 18 : 70 to 77, 8 : 77 to 84, 6 : 84 to 91, 4. In all 209. Now the Christenings in 1705 were 314 : in 1706 were 320 --- This Clerk, on strict Inquiry, and Account kept, found that such as died of chronic Diseases, were to them that died of Acutes, near equal, Chrysoms and Small Pox excepted. --- 3. In the sickly Year 1582 were buried 120, christened 124. It is true it has happened that the Buryings have not only exceeded, but near doubled the Christenings, as in the memorable Year 1723, (the fatallest Year that ever had been in this Parish before) wherein only 365 were baptized, and 632 buried : and in 1741, wherein from *Jan. 1, 1740-1. to Feb. 1. 1741-2.* were buried, 955, and 6 in the Quakers Burying-Place ; in all 961 : Baptized in all 505. --- 4. Having 5 Years before the last fatal Epidemic procured the Number of Families and Souls in this whole Parish. The first was 3232, the last 14200 ; from which subtract 222 for Quakers, there remains 13778. Now from *Jan. 1. 1731. to Jan. 1. 1742.* were buried 4600, which multiply by 3, the total is 13800 ; which at a Medium between healthy, sickly, and fatal Years, takes about 33 Years to bury a Number equal to the present Inhabitants, or about 1 of 33 die yearly. Though the very few buried at
the

the Dissenting Chapels are not registered at the Church, yet their Number is much exceeded by Strangers and Itinerants that die yearly here, and are registered; for as Quakers are not registered, they are excluded out of the first Total. --- 5. In the aforesaid 11 Years, 4700 having been baptized, multiply this by 3, the Product is 14100. Now allow (as appears true by comparing the first and second 27 Years Years Christenings and Buryings) one eighth Part for Children baptized, but not registered at the Church, this will amount to about 600 more; which add to the other, the Total will be 3500; which will bring it to about 26 Years, in which a Number equal to the present Inhabitants is born. Both these last Observations prove the Number of Families and Souls in the Parish to be faithfully taken, and fully proves their Clamours and Suggestions to be meer Rodomontade, who will have the Numbers to be 20, 25, 30; yea some 35000 Souls; for then the greatest Part must be Heathens never baptized, and either immortal, or never buried. Such show themselves Novices at Computation of this kind. But to strengthen the Argument yet more, in 1734 the whole Number of Families in *Gainsborough* Town and Parish was taken most strictly, the Families were 748; Souls 3411. Now from 1702 to 1733 inclusive, were buried 3454: so that a Number superior to the Inhabitants die in $3\frac{1}{2}$ Years. And a Number equal to the present Inhabitants is scarce born in $28\frac{1}{4}$ Years; yet the Weddings are to the Christenings near as $10\frac{1}{2}$ to $39\frac{1}{2}$, or 21

out of $39\frac{1}{2}$ are wed. In the last place, the Proportion of People to the Number of Families proves the Account to be justly taken in the first, as well as in the last. For if 3232 Families contain 14200 People for this Parish, having 3232 Families and 14200 Souls, allow $4\frac{1}{2}$ Persons to each Family, or 9 to 2, the Product will be 1403; only 170 remains *Gainsborough* having 748 Families and 3411 Souls, allow $4\frac{1}{2}$ to a Family, it makes 3304; only 107 remains.

That there has formerly been a considerable Body of Dissenters in this Parish, but are now strangely dwindled away, I prove thus: In 1640. and the next 5 Years following, (which were all mortal, a malignant putrid Fever having made terrible Havock in 43. and 44. especially) were baptized 1463, buried 1449: But in 48. and the 5 next Years (which were all very healthy) were baptized only 973, buried 1044.

I can advance nothing certain on the Eclipses of the Sun and Moon, when attended with no uncommon Air or Seasons, especially in the 16th Century, which from the general fatal Epidemic of 1556. and 7. seems to be very healthy here to 1582. But in the 17th Century seems to be some Difference; for a lunar Eclipse began a Mortality, which prevailed, till it ended with a solar one in *September* after. A total one of the Moon in *March* 89. was attended with a great Death till *July*, which was rekindled with another Eclipse in *September* the same Year, and reigned till *April* after. The like it was at a lunar Eclipse in *March* next Year, when Death rode in Triumph till the Summer Solstice.

since. The same happened in *March* 99. when both Luminaries were darkened: and in *Febr.* 1701. and in 1713. when the Sun was darkened. The like of the Moon in 1715. and in *June* and *July* 1721. and in *Sept.* 26. when both were eclipsed. The same in 29. when the Sun was totally darkened both in *Febr.* and *July*. The like in *Jan.* 30. But remarkable was the Instance in *March* 36. during the Reign of the fatal Measles, (attended or followed by a Peripneumony) for all that were very ill here died the same Night. But on the contrary, the Eclipses in *Aug.* 1673. *June* 94. *Aug.* 1701. *Nov.* 1730, &c. put an end to the then prevailing Mortalities. Some Comets have not increased the Bills of Mortality here, as those of 1571, 77, 85, 1652, &c. By others our Atmosphere seems to be affected, and thereby our Bodies, especially if several remarkable Eclipses have happened about the same time; as in 1580, 90, 96. 1607, 18, 61, 64, 72, 77, 80, 82, 83, 84, 86, 98. 1718. But Prefages of future Mortalities I have not yet been able to learn from our Register, though I have tried it many Ways.

The Healthiness or Sickliness of this Parish may be further discovered, by comparing it with the next contiguous Parish, which, tho' far larger, yet is less populous, lies on the same Soil, has the like Situation, Diet, &c. In it from *Apr.* 1, 1558. to *Apr.* 1, 1584. viz. 27 Years, were baptized Males 623, Females 594, both 1217; Weddings 376: buried Males 483, Females 368, both 851. Here Males are to Females as 62 to 59. Out of every 12 baptized,

tized, $7\frac{1}{2}$ are married ; each two Marriages produced about 7 Children. The Christenings are to the Buryings near as 12 to $8\frac{1}{2}$. From *Apr.* 1, 1716. to *Apr.* 1, 1743. were baptized Males 1175, Females 1139, both 2314 ; Weddings 863 : buried Males 866, Females 804, both 1670. So that the Christenings of the first 27 Years are to those of the last near as 12 to 23 ; the Buryings near as 8 to 16 : the Christenings of the last Period are to the Buryings as 46 to 33. So that this last Parish is both healthier, has few or no Dissenters in it, and its Register seems to be carefully kept. Each Wedding in the last Period produces scarce three Children ; which gives us the Number of extra-parochial Marriages.

In a neighbouring small Market-Town, four Miles east of the first of these Parishes, I find the widest Difference between Males and Females born ; for from 1562. to 1600. both inclusive, were baptized Males 1980, Females 1583, near 19 Males to 15 Females ; and from 1720. to 46. both exclusive, Males 1529, Females 1259, near 5 to 4 ; and in the 120 Years intermediate Space, Males 6368, Females 6038, as 21 to 20, no contemptible Difference : the whole taken together is Males 9877, Females 8876, almost 9 to 8. --- From 1562. to 1592. were baptized yearly, at a Medium, $87\frac{1}{2}$: from 1592. to 1601. baptized, at a Medium, 104, buried 95, little more than one twelfth Increase. From 1601. to 1641. baptized $110\frac{1}{2}$, buried yearly, at a Medium, near 103. From 1641. to 81. baptized yearly $105\frac{1}{2}$, buried

103 $\frac{1}{4}$. From 1681 to 1721. baptized yearly 105 $\frac{1}{4}$ buried 97. And from 1732, to 45 both included, baptized yearly scarce 107, buried 77 $\frac{1}{4}$; which shews, 1. That this Town is much healthier now than from 1562 to 1641. when the Increase was little more than one 16th, but for last 14 Years, it is near one 4th. 2. The late increased Disproportion between Baptisms and Burials shews the Number of Dissenters to be strangely dwindled. 3. Not only is the Place healthier of late Years, but much fruitfuller, and has few extraparochial Weddings: For neither before, nor during the civil Wars, were there more than 3 $\frac{1}{2}$ Births for each Wedding, including Bastards and all; now there are above 4 $\frac{1}{2}$ exclusive of Bastards. 4. That from 1590 to 1745-6. this Town has only exported, (over and above its Imports) 1550. or about one 11th Part, viz. 987 Males and 643 Females. 5. That Towns without Trade or Manufactory, only a weekly Market to depend upon, just languish and live. 6. That as *April* is not only the fruitfullest Month, it is chiefly so of Males. The first four Months of the Year, (beginning with *March*) as 63 to 54. And the 3d 4 Months as 63 to 53. - - - 7. That as *April* is the most prolific, so it is the most fatal Month in the Year; then *Jan. Feb. March, Decem. and May*. The most favourable, are *July, August, Sept. June, Novr. Octob.* The Mortality of the former 6 Months is to that of the latter as 15 to 12. or 5 to 4. *April* alone is to *June, July or Aug.* as 13 to 9; it is to *March* above 13 to 12. The Mortality

tality of *April* and *January* is to that of *Sep.* and *Octob.* as to $26 \frac{1}{2}$ to $20 \frac{1}{2}$. Thus we see the Difference between the Vernal and Autumnal Mortality. It is worth our Notice, that in all Registers, for a long Series of Years, the fatallest Months of the Year are also the fruitfull.

---- 8. The intermediate Degree wherein Mortality moves from its two Extrems of lowest and highest is from 1 to 4. In 1667. died 205. but in 1708 only 49. but the common Medium in which it moves is from 70 to 120.

--- 9. When the Bills run pretty high, they quickly fall; in 1592, died 147. but for 3 Years after they reached not 80: Or, when a great Mortality happens here, it comes not all at once, but steals on gradually. For in 1666 died 113. in 67, 205. and 1668, 113. Or where a long Series of healthy Years succeed one another, a proportionable Number of sickly Years follow and take their Turn. Thus from 1600. to 1613. were very healthy, the yearly Burials never reached 100. but the next 4 Years it went from 103 to 153; but when fewer healthy Years have preceeded, the following sickly Years have neither been so many nor fatal. ---

10. Great Mortalities happened seldomer since 1673 than before. The Register since the latter have only 10 Times come up to 100. and exceed it 8 Times in 73 Years. But from 1613 to 73, it exceeded 110. 26 Times, and wavered from 100 to 110. 11 Years more. In the same 60 Years happened 11 Years great Mortality, in 6 whereof the Register swelled from 150 to 205. but in the last 73 Years were

were only 5 fatal Years, none whereof exceeded 135. - - - - 11. The greatest Mortalities have been forest on the Males ; the Death of Females never exceeded that of Males above 23 in a Year, but the latter have exceeded the former 39 in a Year. The Mortality from 1613. to 73. is to that from 73. to 1746. as 64. to 51. Thus the Register of each Parish would afford particular Observations, which the Curious may easily make for themselves.

In Vol. 3d of *Lowthorp's Abridgement of the Philosophical Transactions*, the Author gives the Marriages and Burials of *Franckfort* and *Sachsenhausen*, where in 1695 were baptized 916. buried 748. Then he gives us the Births, Marriages and Burials of the three *Marcks*, and *Brandenburg* in 1698. in both which were baptized 81539. Weddings 21996. buried 51816. the first to the last near as 8 to 5. - - - - The King of *Prussia* in his whole Dominions 1715. 16. 17. 18. yearly at a Medium had 78826 baptized, 20520 $\frac{1}{2}$ married, 55852 buried, the first to the last as 78. to 55. In how many Years these Places will double their Inhabitants may be seen in the Additions to Tab. 8. before. - - - - In *Breslaw* from 1687. to 92. inclusive, were buried yearly at a Medium 1174. baptized 1238. or one 20th Part Increase, which may be levied for the Prince's Service ; of the 1238 Births, 348 die the first Year, and 193 die the next 5 Years; at the six Years End only 692 survive, at which Age the Children being stronger, are less mortal. There die yearly of the People of *Breslaw* above 6 Years old, as in
this

this Table, where the upper Line is the Age, and the lower Line the Number of Persons that die yearly at a Medium, and where there is no Figure over it, in the Line above, it is the Number of those that die between the Ages of the preceeding and following Columns.

Table XXI.

| | | | | | | |
|-----------------|-------------------|-------------------|--------------------|----------------|----------------|-----|
| 7. | 9. | 14. | 18. | 21. | | |
| 11. | 6. $5\frac{1}{2}$ | 2. $3\frac{1}{2}$ | 5. 6. | $4\frac{1}{2}$ | $6\frac{1}{2}$ | |
| 28. | 35. | 36. | 42. | 45. | | |
| 8. 7. | 7. | 8. $9\frac{1}{2}$ | 8. 9. | 7. 7. | | |
| 54. | 55. | 56. | 63. | 70. | 71. | 72. |
| 11. | 9. | 9. 10. | 12. $9\frac{1}{2}$ | 14. | 9. | 11. |
| 77. | 81. | 84. | 90. | 91. | | |
| 6. 7. | 3. 4. | 2. 1. | 1. | 1. | | |
| 99. | 100. | | | | | |
| $\frac{1}{2}$. | $\frac{1}{2}$. | | | | | |

He says this agrees pretty well with Church-Hospital Bills, where of the young I only about 1 *per Cent.* dies yearly. From 25 to 50 there die 7, 8, or 9 yearly of each Age. From 50 to 70. yet the Mortality increases, and tho' the surviving Number be small, yet the Mortality increases, and there are found to die 10 or 11 of each Age yearly. From thence the Living being few, they decline gradually till there be none left to die. The following very unusual

Table gives a more just Idea of the State and Condition of Mankind, than any Thing he knows of yet extant. It gives the Number of People of *Breslaw* of all Ages, from the Birth to very old Age; and how to make an Estimate of the Value of Annuities for Lives, and the Chances that there are that a Person of any Age proposed, does live to any other Age given. This Table shews the Number of Persons that are living in the Age current annexed thereto.

Table

Table XXII.

| Age. | Persons. | Age. | Persons. | |
|------|----------|------|----------|--|
| 1 | 1000 | 43 | 417 | |
| 2 | 855 | 44 | 407 | |
| 3 | 798 | 45 | 397 | |
| 4 | 760 | 46 | 386 | |
| 5 | 732 | 47 | 377 | |
| 6 | 710 | 48 | 367 | |
| 7 | 692 | 49 | 357 | |
| 8 | 680 | 50 | 346 | |
| 9 | 670 | 51 | 335 | |
| 10 | 661 | 52 | 324 | |
| 11 | 653 | 53 | 313 | |
| 12 | 646 | 54 | 302 | |
| 13 | 640 | 55 | 292 | |
| 14 | 634 | 56 | 282 | |
| 15 | 628 | 57 | 272 | |
| 16 | 622 | 58 | 262 | |
| 17 | 617 | 59 | 252 | |
| 18 | 610 | 60 | 242 | |
| 19 | 604 | 61 | 232 | |
| 20 | 598 | 62 | 222 | |
| 21 | 592 | 63 | 212 | |
| 22 | 586 | 64 | 202 | |
| 23 | 579 | 65 | 192 | |
| 24 | 573 | 66 | 182 | |
| 25 | 567 | 67 | 172 | |
| 26 | 560 | 68 | 162 | |
| 27 | 553 | 69 | 152 | |
| 28 | 546 | 70 | 142 | |
| 29 | 539 | 71 | 131 | |
| 30 | 531 | 72 | 120 | |
| 31 | 523 | 73 | 109 | |
| 32 | 515 | 74 | 98 | |
| 33 | 507 | 75 | 88 | |
| 34 | 499 | 76 | 78 | |
| 35 | 490 | 77 | 68 | |
| 36 | 480 | 78 | 58 | |
| 37 | 472 | 79 | 49 | |
| 38 | 463 | 80 | 41 | |
| 39 | 454 | 81 | 34 | |
| 40 | 445 | 82 | 28 | |
| 41 | 436 | 83 | 23 | |
| 42 | 427 | 84 | 20 | |

| Between | |
|---------|-----|
| 1 and | 7 |
| 7 and | 14 |
| 14 and | 21 |
| 21 and | 28 |
| 28 and | 35 |
| 35 and | 42 |
| 42 and | 49 |
| 49 and | 56 |
| 56 and | 63 |
| 63 and | 70 |
| 70 and | 77 |
| 77 and | 84 |
| 84 and | 100 |
| Total : | |

Thus he shews the whole People of *Breslaw* consists of 34000 Souls, which is the same total in the Table whose Uses are, --- 1. To shew the Proportion able to bear Arms in any Multitude, which are these between 18 and 56. For at 16 they are too young, and at 60 too crasie and infirm in general. Under 18 from the Table, are found in this City 11997 Persons and 3950 above 56. both these added, makes 15947, which substract from 34000; there remains 18053, whereof one half, or 9027 are Males, fit to bear Arms; but more than a half of the 18053 being Males, drop the Surplus for incapable and Invalids, but 9027 being 527 above 1 4th of 34000, or 1 - - 18th of the 9000 pass them also for Gentlemen, Men of the three Professions, Merchants, &c. still 1 4th remains good - - - - 2dly, This Table shews the different Degrees of Mortality, or rather Vitality of all Ages; for if the No of Persons of any Age, remaining after 1 Year, be divided by the Difference between that and the No of the Age proposed, it shews the Odds that there is that the Person of that Age does not die in a Year, *ex gr.* a Person aged 25 Years has the Odds of 560 to 7, or 80 to 1, that he does not die in a Year; for if 560 of that Age, only 7 died in a Year. It likewise shews the Odds that any Person does not die before he attains any proposed Age; take the No of the remaining Persons of the Age proposed, and divide it by the Difference between it and the No of those of the Age of the Party proposed; and that shews the Odds there is between the Chan-

ces of the Party living or dying, *ex gr.* What's the Odds that a Man of 40 Lives 7 Years? Take the No of Persons of 47 Years, which in the Table is 377, and subtract it from the No of Persons of 40 Years, which is 445, the Difference is 68, which shews that the Persons dying in that 7 Years are 68, and that it is 377 to 68, or $5\frac{1}{2}$ to one, that a Man of 40 does live 7 Years, and so of other Ages. - - - - 3^{dly}, If it be asked, at what No of Years, it is an even Lay, that a Person of any Age shall die, this Table readily performs it; for if the Number of the Persons living of the Age proposed be halfed, it will be found by the Table, at what Year the said No is reduced to half by Mortality; and that is the Age to which it is an even Wager, that a Person of the Age, shall arrive before he die. *Ex gr.* A Person of 30 Years of Age is proposed, the No of that Age is 531, the half of which is 275, which No he finds to be between 57 and 58 Years, so that a Man of 30 may reasonably expect to live between 27 and 28 Years. - - - - 4^{thly}, By what has been said, the Price of Insurance upon Lives ought to be regulated, and the Difference is discovered between insuring the Life of a Man of 20 and 50 *ex gr.* it is a 100 to 1, that a Man of 20 dies not in a Year; and but 38 to 1 for a Man aged 50 Years. On this depends the Valuation of Annuities upon Lives, seeing 'tis plain, that the Purchaser ought to pay for only such a Part of the Value of the Annuity, as he has chances that he is living; and this should be computed yearly, and the Sum

Sum of those yearly Values being added together, will amount to the Value of the Annuity for the Life of the Person proposed.

To this our Author adds a great Deal more on Annuities from the ingenious Mr. *Edmund Halley* on the *Breslaw* Bills of Mortality in No 196. *Philoso. Transf.* But there has been so much wrote, both then and since, on that Subject, that I shall not here enter upon it. I the more willingly decline it, especially as it is foreign to our Subject; and as a serious Reflection on our former Tables, chiefly the 1st and 7th will afford so many just Objections to all general Tables of Annuities, arising from the different Situation of Places, several Climates, various Constitutions, Difference of Education, Trades, Businesses, Way of Life, Use or Abuse of the Nonnaturals in a Place, Town or Country in general, &c.

OBSERVATIONS
ON THE
QUANTITIES
OF

Rain, fundry Winds, Meteors,
with their Signs, &c.

THE Weather has so great an Influence on our Bodies, and is so often the Means of producing, protracting, increasing, alleviating or checking Diseases of different Kinds, according to its several Sorts and Duration, and the various Changes of the Air, very often into opposite Extreams, that one cannot well, and should not treat of Bills of Mortality, without taking some Notice of these Alterations, and how they are brought about; more especially, as they not only affect human Bodies, but the Product of the Earth itself, either in rendering it barren, or spoiling its Fruit, and making them unwholsome; but above all, when both a bad Air, Scarcity or Famine, and unwholsome Product of the Earth happen together. What shocking Work did the unnatural (to this Climate) and unseasonable Cold of the whole Year 1695 and 96 make first by
Famine,

Famine, and then with the fatal Fever of 98 ? Great Sickness succeeded the Rains of 1712 and 1713, and great Mortality, the Cold of 1723 and the Heat of 1726, and the Variableness of 27 ; the Wetness of 35, the Rains of 39 succeeded by the Cold ; Frost and Scarcity of 40 and 41 one cannot look into the fatal Years in the Bills of Mortality without reflecting upon, or enquiring into the preceeding or concomitant State of the Air and Weather. However Rains or Drought, Heat or Cold may have been accused of producing Diseases, yet upon a stricter and closer Enquiry, we shall find, that a too great Fixedness of the Winds for a long Time to one particular Point, has been the more remote, mediate and chief Cause, as in the Diseases of 1666, 1667, 95 and 96. What Depopulating did near a 12 Years Prevalency of a N. Wind make in *Prussia* ? On the contrary, we shall find these Years in general the healthiest, wherein the Winds are often shifting and varying, and the Air neither unseasonably hot nor cold, dry nor moist, light nor heavy. But of all fixt Winds, the West is commonly the healthiest, the N. N. E. and E. being too cold, the S. and S. W. being too moist, or sultry. By comparing Journals of the Weather kept in different Places, and Bills of Mortality together, we see clearer the Effects of the Air and Weather on human Bodies, and see the Reason why the same Disease at the same Time is severe in one Place, and favourable in another. And why different

Species of Diseases of the same Genius are stirring at the same Time in several Parts, and have sundry Terminations, and by taking in the Distances and different Situations, we see why it may be healthy in one Place, and sickly in another, &c. It is surprizing not only to see the Difference of the Wind and Weather in the Journals of *Germany* and *Holland*, and of *Holland* and *England*, in 1728 and 29: But to see the wonderful Difference in the same Days in the S. West, *Midland* and N. of *England*, hence various Seasons, and very different Effects,

In the first 15 Years of the *Townley* Register, we have whole Pounds of Water, which at the same Time gives both the Quantity of half Pounds and the Height of Inches, with this Difference, that either in the Months, Years, or Totals, for the half Pounds the last Figure is a Decimal Fraction, and the next before it the half Pounds, and for the Height the two last Figures denote the Decimal Fraction of an Inch, and the Remainder the Height of the Inches. In all the other Registers, the Rain is counted by Inches, Decimals, or Centesimals. *Malton* Register of 1743, and to the End, is measured by Pints; the Receiver there is square 38 Inches in Compass, and the Cistern 14. In the *Lyndon* Register the first Column of every Month gives the Height of the Barometer, the second of the Thermometer, the third the Quantities of Rain; after which are the Funerals.

Table XXV.

The different Quantities of Rain that fell in several Places of England.

At *Townley*, near *Bourneley*, in *Lancashire*.

| Year | 1677 | 1678 | 1679 | 1680 | 1681 | 1682 | 1683 | 1684 | 1685 | 1686 | 1689 | 1690 | 1691 | 1692 | 1693 | Total |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| Jan. | 472 | 371 | 143 | 512 | 53 | 906 | 238 | 32 | 110 | 472 | 333 | 707 | 197 | 54 | 218 | 4798 |
| Feb. | 270 | 371 | 161 | 492 | 363 | 135 | 245 | 483 | 42 | 20 | 393 | 171 | 112 | 168 | 78 | 4574 |
| Mar. | 245 | 250 | 202 | 413 | 235 | 237 | 305 | 887 | 185 | 572 | 875 | 145 | 476 | 342 | 298 | 4867 |
| Apr. | 325 | 170 | 92 | 222 | 57 | 308 | 402 | 370 | 380 | 305 | 478 | 78 | 386 | 498 | 539 | 4600 |
| May | 313 | 581 | 105 | 188 | 69 | 315 | 353 | 97 | 201 | 437 | 182 | 244 | 300 | 330 | 93 | 3808 |
| June | 516 | 257 | 298 | 342 | 397 | 517 | 468 | 192 | 410 | 473 | 302 | 179 | 412 | 416 | 181 | 5360 |
| July | 351 | 339 | 350 | 302 | 292 | 482 | 412 | 313 | 497 | 188 | 120 | 218 | 285 | 448 | 112 | 4709 |
| Aug. | 485 | 145 | 835 | 502 | 425 | 385 | 582 | 338 | 398 | 870 | 222 | 402 | 193 | 198 | 668 | 6648 |
| Sept. | 223 | 527 | 553 | 146 | 607 | 293 | 152 | 199 | 163 | 572 | 442 | 403 | 215 | 605 | 641 | 5741 |
| Oct. | 333 | 644 | 616 | 570 | 170 | 427 | 330 | 425 | 325 | 293 | 740 | 765 | 165 | 273 | 514 | 6590 |
| Nov. | 432 | 555 | 127 | 479 | 235 | 525 | 192 | 579 | 522 | 709 | 415 | 217 | 231 | 141 | 627 | 6492 |
| Dec. | 400 | 57 | 439 | 269 | 423 | 456 | 37 | 200 | 548 | 132 | 368 | 262 | 169 | 892 | 261 | 5003 |
| Total | 4365 | 4267 | 3821 | 4428 | 3326 | 5066 | 3716 | 3414 | 3781 | 5043 | 4860 | 4291 | 3140 | 4372 | 4230 | 62120 |
| Inches | 43.65 | 42.07 | 38.21 | 44.28 | 33.26 | 50.66 | 37.16 | 34.14 | 37.81 | 50.43 | 48.60 | 42.91 | 31.40 | 43.72 | 42.30 | 631.94 |

Townley

Townley continued.

| Year | 1697 | 1698 | 1699 | 1700 | 1701 | 1702 | 1703 | Total |
|--------|--------|--------|--------|--------|--------|--------|------------------|----------------------|
| Jan. | 5.13 | 6.47 | 17.91 | 20.84 | 22.41 | 21.10 | 15.17 | 109.3 |
| Febr. | 7.17 | 5.88 | 32.70 | 19.12 | 16.78 | 21.27 | 15.88 | 118.80 |
| Mar. | 4.93 | 2.16 | 17.92 | 7.58 | 7.10 | 2.48 | 20.2 | 62.19 |
| Apr. | 4.12 | 20.95 | 10.47 | 18.65 | 6.11 | 5.34 | 17.3 | 82.67 |
| May | 11.88 | 8.95 | 4.00 | 17.92 | 19.67 | 8.81 | 17.04 | 88.87 |
| June | 8.92 | 6.45 | 10.37 | 13.15 | 11.34 | 23.00 | 24.06 | 97.29 |
| July | 13.15 | 10.37 | 16.51 | 15.26 | 17.58 | 25.31 | 3.65 | 101.83 |
| Aug. | 40.25 | 21.50 | 19.77 | 12.5 | 23.66 | 20.12 | 14.21 | 151.56 |
| Sept. | 46.90 | 21.79 | 16.53 | 23.52 | 21.30 | 23.1 | | 153.5 |
| Oct. | 27.60 | 22.25 | 18.90 | 16.44 | 24.59 | 28.57 | 7.14 | 155.50 |
| Nov. | 10.72 | 24.72 | 14.65 | 13.09 | 25.60 | 37.11 | 28.56 | 154.40 |
| Dec. | 24.50 | 20.32 | 16.78 | 26.88 | 10.19 | 41.65 | 10.34 | 150.74 |
| Pound | 205.70 | 189.92 | 196.51 | 215.30 | 206.33 | 257.75 | 190.60 | 1468.11 |
| Inches | 41.40 | 37.984 | 39.302 | 43.60 | 41.266 | 51.55 | 39 $\frac{1}{2}$ | 299 $\frac{1}{2}$ 21 |

Chelmsford in Essex.

| Year | 1737 | 1738 | 1739 | 1740 | 1741 | 1742 | Total |
|-------|--------|-------|--------|--------|--------|-------|--------|
| Jan. | 0.618 | 1.080 | 3.075 | 000 | 652 | 1.020 | 5.425 |
| Febr. | 1.444 | 809 | 4.262 | 148 | 905 | 430 | 7.568 |
| Mar. | 2.593 | 2.161 | 1.161 | 688 | 329 | 00 | 6.932 |
| Apr. | 1.280 | 1.534 | 3.345 | 1.659 | 389 | 950 | 7.207 |
| May | 1.532 | 919 | 1.924 | 785 | 3.165 | 207 | 8.325 |
| June | 610 | 2.834 | 2.362 | 792 | 1.497 | 2.190 | 8.101 |
| July | 4.903 | 1.383 | 2.271 | 1.325 | 1.240 | 830 | 11.128 |
| Aug. | 3.856 | 1.750 | 2.125 | 1.630 | 1.603 | | 10.96 |
| Sept. | 3.652 | 1.803 | 2.257 | 1.741 | 2.218 | | 11.571 |
| Oct. | 2.502 | 2.762 | 156 | 381 | 1.879 | | 7.680 |
| Nov. | | 2.021 | 1.826 | 2.259 | 2.014 | | 8.120 |
| Dec. | 1.060 | 1.822 | 1.557 | 2.794 | 1.300 | | 9.145 |
| | 21.565 | 20.72 | 27.316 | 14.202 | 17.197 | | |

At Uppinifer in Essex.

| Year | 1696 | 1697 | 1698 | 1699 | 1700 | 1701 | 1702 | 1703 | 1705 | 1707 | 1708 | 1715 | 1716 | Totals |
|-------|-------|--------|-------|-------|-------|--------|--------|-------|-------|-------|--------|-------|------------|--------|
| Jan. | 3.61 | 10.94 | 8.91 | 3.91 | 14.96 | 9.81 | 8.89 | 1.11 | 7.10 | 14.39 | 4.31 | 8.61 | 1704 15.81 | 96.55 |
| Feb. | 1.80 | 1.31 | 6.5 | 7.64 | 8.78 | 7.30 | 6.41 | 5.53 | 6.20 | 2.30 | 3.7 | 1.76 | 1706 24.29 | 58.15 |
| Mar. | 2.68 | 9.33 | 5.63 | 1.55 | 3.91 | 2.37 | 4.75 | 5.55 | 7.14 | 10.13 | 12.53 | 1.93 | 1708 19.22 | 67.50 |
| Apr. | 7.53 | 8.8 | 3.44 | 7.60 | 1.43 | 10.90 | 12.49 | 5.15 | 7.13 | 4.77 | 13.19 | 5.4 | 1709 26.56 | 86.75 |
| May | 3.20 | 12.3 | 2.67 | 6.91 | 9.11 | 6.49 | 20.77 | 2.03 | 5.25 | 10.11 | 4.60 | 9.52 | 1710 18.37 | 92.75 |
| June | 4.91 | 8.78 | 40 | 7.60 | 5.79 | 13.46 | 14.55 | 2.20 | 6.68 | 11.61 | 13.34 | 8.24 | 1711 23.60 | 97.56 |
| July | 6.19 | 17.3 | 6.36 | 4.24 | 9.49 | 4.39 | 14.90 | 5.56 | 6.37 | 5.52 | 20.60 | 4.47 | 1712 23.76 | 105.12 |
| Aug. | 13.98 | 7.21 | 8.57 | 8.14 | 6.57 | 6.88 | 3.36 | 10.81 | 88 | 14.70 | 20.49 | 2.11 | 1713 23.50 | 103.70 |
| Sept. | 10.47 | 12.7 | 8.6 | 14.85 | 5.6 | 8.5 | 8.7 | 2.4 | 14.50 | 7.28 | 9.17 | 9.87 | 1714 11.19 | 110.6 |
| Oct. | 8.39 | 13.8 | 13.40 | 17.15 | 10.21 | 7.92 | 9.55 | 16.1 | 6.62 | 2.14 | 14.08 | 5.75 | 1715 24.5 | 134.39 |
| Nov. | 5.63 | 16.8 | 1.91 | 5.24 | 8.22 | 14.5 | 7.27 | 5.84 | 5.90 | 4.30 | 8.53 | 4.41 | 1716 15.0 | 88.13 |
| Dec. | 9.31 | 5.83 | 5.77 | 10.30 | 9.35 | 10.27 | 2.14 | 21.70 | 12.14 | 9.84 | 2.55 | 7.16 | | 106.36 |
| | 77.00 | 122.32 | 75.55 | 95.13 | 93.45 | 101.89 | 119.94 | 83.53 | 58.34 | 97.5 | 128.93 | 78.67 | | 1147.2 |
| | 15.52 | 24.46 | 15.11 | 19.03 | 18.69 | 20.38 | 23.99 | 16.93 | 16.31 | 15.29 | 24.5 | 15.00 | | 252.12 |

Five:

Five Years *Kent.*

| Year | 1720 | 1730 | 1732 | 1733 | 1734 | Total |
|--------------|--------|--------|---------|--------|-------|---------|
| <i>Jan.</i> | 499 | 624 | 537 | 1.235 | 1.63 | 8.458 |
| <i>Feb.</i> | 1.69 | 2.54 | 2.276 | 1.925 | 2.43 | 8.367 |
| <i>Mar.</i> | 1.286 | 4.67 | 1.216 | 2.161 | 1.98 | 9.828 |
| <i>Apr.</i> | 2.197 | 985 | 1.310 | 1.815 | 59 | 6.366 |
| <i>May</i> | 2.216 | 1.805 | 3.494 | 216 | 3.89 | 10.820 |
| <i>June</i> | 730 | 2.876 | 803 | 1.742 | 2.13 | 8.164 |
| <i>July</i> | 2.153 | 2.598 | 1.527 | 979 | 1.4 | 8.261 |
| <i>Aug.</i> | 2.543 | 131 | 931 | 3.394 | 1.16 | 8.965 |
| <i>Sept.</i> | 2.343 | 2.043 | 825 | 1.499 | 1.59 | 7.769 |
| <i>Oct.</i> | 2.218 | 2.424 | 3.295 | 790 | 3.13 | 11.740 |
| <i>Nov.</i> | 4.334 | 2.065 | 1.269 | 1.081 | 1.49 | 9.798 |
| <i>Dec.</i> | 1.947 | 1.322 | 1.471 | 3.201 | 7.26 | 14.967 |
| | 23.525 | 22.924 | 140.520 | 19.998 | 29.72 | 109.283 |

London, Seven Years.

| Year | 1729 | 1730 | 1731 | 1732 | 1733 | 1734 | 1735 | Total |
|--------------|--------|--------|-------|--------|-------|-------|-------|---------|
| <i>Jan.</i> | 739 | 450 | 125 | 525 | 69 | 1.1 | 2.36 | 5.575 |
| <i>Febr.</i> | 785 | 1.230 | 82 | 1.90 | 1.16 | 1.935 | 1.78 | 9.610 |
| <i>Mar.</i> | 1.125 | 3.595 | 5 | 1.15 | 2.145 | 1.79 | 2.24 | 12.95 |
| <i>Apr.</i> | 1.600 | 670 | 1.26 | 2.765 | 1.70 | 45 | 1.16 | 9.605 |
| <i>May</i> | 1.515 | 755 | 30 | 3.2 | 55 | 4.17 | 2.4 | 13.620 |
| <i>June</i> | 1.200 | 3.755 | 2.30 | 1.5 | 2.65 | 3.21 | 2.8 | 16.245 |
| <i>July</i> | 1.4 | 2.390 | 2.85 | 1.13 | 1.54 | 1.11 | 3.14 | 12.435 |
| <i>Aug.</i> | 3.04 | 20 | 1.73 | 1.5 | 3.225 | 1.76 | 1.49 | 12.529 |
| <i>Sept.</i> | 3.505 | 2.100 | 55 | 1.14 | 1.37 | 1.0 | 1.56 | 11.225 |
| <i>Oct.</i> | 1.420 | 2.460 | 1.36 | 2.39 | 91 | 2.10 | 98 | 11.611 |
| <i>Nov.</i> | 2.425 | 1.570 | 1.53 | 1.2 | 52 | 1.77 | 2.69 | 11.705 |
| <i>Dec.</i> | 1.950 | 1.500 | 1.40 | 7.705 | 2.44 | 4.27 | 1.5 | 14.655 |
| | 20.344 | 21.495 | 13.60 | 19.655 | 18.09 | 24.57 | 22.83 | 141.220 |

Monthly

Monthly Quantity of Rain at Southwick, near Oundle.

| Year | 1726 | 1727 | 1728 | 1729 | 1730 | 1731 | 1732 | 1733 | 1734 | 1735 | 1736 | 1737 | 1738 | 1739 | 1740 | 1741 | Total |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|------|-------|
| Jan. | 4.2 | 3.1 | 4.0 | 2 | 4 | 8 | 9 | 10 | 5 | 2.1 | 2.3 | 1.0 | 1.7 | 2.4 | .4 | 1.26 | 25.0 |
| Feb. | 1.0 | 2.6 | 9 | 5 | 1.5 | 1.0 | 1.2 | 1.4 | 2.6 | 7 | 2.9 | 2.2 | .8 | 3.1 | .2 | .70 | 22.6 |
| Mar. | 1.5 | 1.4 | 3.3 | 1.3 | 2.6 | 11 | 1.4 | 2.2 | 1.8 | 2.2 | 2.1 | 2.1 | 1.0 | 1.3 | .8 | .75 | 26.1 |
| Apr. | 1.0 | 1.2 | 2.0 | 1.1 | 8 | 2.1 | 1.2 | 1.0 | 6 | 1.7 | 6 | 4 | 1.3 | 2.2 | .9 | .42 | 18.1 |
| May | 4 | 4.3 | 1.4 | 1.6 | 2.5 | 3 | 3.4 | 6 | 5.1 | 1.5 | 8 | 1.7 | 1.9 | 1.9 | .6 | .38 | 27.4 |
| June | 4.0 | 3.2 | 2.8 | 8 | 3.4 | 3.4 | 1.8 | 2.0 | 1.3 | 2.4 | 1.4 | 1.8 | 1.4 | 1.5 | 1.7 | .75 | 31.7 |
| July | 3.7 | 2.0 | 3.2 | 2.3 | 2.0 | 1.7 | 1.7 | 2.2 | 1.8 | 2.3 | 6 | 7 | 1.2 | 1.7 | 2.3 | .77 | 34.9 |
| Aug. | 3 | 3 | 1.0 | 2.4 | 8 | 1.6 | 1.7 | 3.6 | 4.0 | 3.2 | 1.7 | 5.7 | 1.6 | 2.5 | 3.0 | 4.49 | 33.4 |
| Sept. | 5.2 | 2.0 | 8 | 5.3 | 1.6 | 1.5 | 7 | 1.4 | 1.7 | 3.2 | 1.4 | 3.8 | 1.8 | 1.8 | 1.82 | | 34.0 |
| Oct. | 1.5 | 1.5 | 2.8 | 2.2 | 3.0 | 1.4 | 3.7 | 6 | 2.8 | 1.7 | 2.6 | 1.8 | 1.8 | .8 | .96 | | 29.1 |
| Nov. | 1.4 | 4 | 1.5 | 4.2 | 2.0 | 1.5 | 1.2 | 5 | 9 | 1.7 | 6 | 6 | .7 | 1.7 | 1.69 | | 20.6 |
| Dec. | 2.5 | 2.8 | 2.4 | 1.7 | 8 | 2.3 | 2.6 | 1.7 | 4.4 | 2.1 | 2.0 | 2.3 | 1.2 | 1.9 | 3.18 | | 34.0 |
| Total | 26.7 | 25.0 | 26.0 | 23.0 | 21.0 | 17.0 | 20.0 | 17.0 | 27.0 | 25.0 | 24.0 | 24.0 | 18.0 | 22.0 | 13.75 | 9½ | 336.9 |

Darlington Rain begins with March.

| Year | 1736 | 1737 | 1738 | 1739 | 1740 | 1741 | 1742 | Total |
|-------|------|-------|------|-------|-------|-------|-------|-------|
| | .99 | 1.33 | 1.25 | 2.2 | .50 | .62 | 0.0 | 6.71 |
| | .94 | 1.82 | 1.90 | 4.50 | 1.6 | .37 | 1.75 | 10.59 |
| | .61 | .74 | 3.0 | 3.37 | 1.90 | 1.0 | 1.0 | 10.52 |
| | .75 | 1.17 | 1.37 | 2.62 | .34 | 1.6 | 3.12 | 7.31 |
| | 2.50 | 1.66 | 1.75 | 3.31 | 1.87 | 1.37 | 1.62 | 12.46 |
| | 2.40 | 2.64 | 1.87 | 1.94 | 2.28 | 2.62 | .44 | 13.75 |
| | .94 | 3.23 | 2.30 | 5.28 | 1.6 | 3.76 | .75 | 16.57 |
| | 2.3 | 3.40 | 2.81 | .94 | 1.25 | 2.75 | 3.56 | 13.18 |
| | 1.79 | 1.16 | 2.0 | 2.94 | 3.18 | 1.19 | 1.50 | 12.26 |
| | 1.95 | 2.0 | 1.65 | 2.77 | 2.0 | | | 10.37 |
| | .96 | 2.44 | 1.81 | 0.0 | 1.12 | .50 | | 6.83 |
| | 1.16 | .91 | 1.37 | .18 | 1.0 | .75 | | 5.40 |
| Total | 17.5 | 22.50 | 23.8 | 29.87 | 17.56 | 15.99 | 13.74 | 126.5 |

Malton begins April.

| Year | 1736 | 1737 | 1739 | 1740 | 1741 | 1742 | Total |
|-------|--------|--------|--------|--------|--------|-------|---------|
| | 2.100 | 1.578 | 4.400 | .205 | .548 | 0.950 | 8.831 |
| | 2.615 | 1.73 | 3.351 | .802 | 3.400 | .207 | 11.241 |
| | .181 | 2.322 | 3.400 | 1.100 | 2.402 | 2.190 | 9.405 |
| | 1.968 | 2.658 | 3.823 | .504 | 3.543 | .830 | 12.496 |
| | 2.247 | 3.301 | 2.840 | 1.342 | .842 | | 10.572 |
| | 2.500 | 1.285 | 3.742 | 5.924 | 3.145 | | 16.596 |
| | 3.529 | 3.742 | 3.63 | 4.498 | 4.300 | | 19.232 |
| | 2.896 | 2.742 | 3.856 | 4.00 | 2.500 | | 15.994 |
| | 4.00 | 2.165 | 3.00 | | | | 16.531 |
| | 2.539 | 2.235 | 1.854 | 3.131 | 11.500 | 1.020 | 12.894 |
| | 1.283 | 3.453 | 1.793 | | .645 | 0.430 | 7.174 |
| | 2.044 | 1.915 | 2.451 | | .420 | 0.000 | 7.334 |
| Total | 27.802 | 28.449 | 37.672 | 22.010 | 33.265 | | 148.300 |

Plymouth

Plymouth for eleven Years begins with January.

| Year | 1727 | 1728 | 1729 | 1730 | 1731 | 1732 | 1733 | 1734 | 1735 | 1736 | 1737 | Total |
|-------|--------|--------|-------|--------|--------|-------|--------|--------|--------|--------|--------|---------|
| | 2,965 | 6,108 | .900 | .666 | .622 | 3,504 | 2,384 | 1,480 | 2,526 | 5,07 | 1,588 | 27,873 |
| | 4,452 | 1,924 | 1,184 | 2,315 | 1,706 | 2,924 | 3,734 | 5,554 | 1,978 | 3,82 | 3,488 | 32,331 |
| | 1,868 | 3,317 | 2,92 | 3,442 | .140 | 3,174 | 3,98 | 2,812 | 2,234 | 2,138 | 4,328 | 28,043 |
| | 1,511 | 4,153 | 1,692 | 1,258 | 1,254 | 2,196 | 2,284 | 2,126 | 2,252 | 1,340 | 3,58 | 23,124 |
| | 5,902 | 1,633 | 1,560 | 1,604 | .634 | 2,424 | 1,10 | 1,764 | 1,646 | 2,536 | .332 | 21,45 |
| | 2,483 | 1,636 | 1,662 | 1,715 | 2,148 | 1,270 | 1,534 | 3,408 | 1,936 | 1,614 | 1,66 | 20,272 |
| | 1,80 | 3,179 | 1,918 | 2,50 | 1,300 | 2,288 | .772 | 2,982 | 3,536 | 4,870 | 1,320 | 25,295 |
| | .299 | 1,894 | 1,02 | 1,538 | 1,988 | .362 | 4,500 | 4,22 | 2,906 | 1,834 | 3,848 | 24,193 |
| | 3,807 | 1,526 | 6,498 | 2,68 | 1,300 | 3,50 | 1,978 | 1,752 | 1,918 | 1,512 | 2,826 | 28,295 |
| | 2,490 | 5,386 | 3,985 | 3,372 | 2,366 | 6,342 | 2,26 | 3,154 | 2,756 | 6,534 | 1,556 | 39,967 |
| | .826 | 3,535 | 6,333 | 4,480 | 2,356 | .584 | 1,882 | 2,68 | 4,922 | 1,150 | 1,334 | 29,470 |
| | 4,172 | 2,273 | 4,180 | 1,190 | 1,452 | 4,918 | 4,688 | 6,102 | 2,364 | 5,02 | 2,620 | 30,75 |
| Total | 31,915 | 36,564 | 33,6 | 25,698 | 17,266 | 33,96 | 29,900 | 37,114 | 30,974 | 36,796 | 27,364 | 339,603 |

The Monthly and Yearly Quantities of Rain that fell at *Lyndon*, near *Uppingham*, in the County of *Rutland*, as it was exactly taken by that worthy and ingenious Gentleman *Thomas Barker Jun. Esq;* with his Father's and his own Observations on the Weather. After the Monthly Quantity of Rain is added the Monthly Number of Funerals in the next Town to it.

| 1736 | | | | 1737 | | | |
|-------|-------|-------|-------------|--------|-------|-------|-------------|
| | Bar. | Ther. | Rain. died. | | Bar. | Ther. | Rain. died. |
| Jan. | | | 2 | 30.20 | 54.4 | | |
| | | | | 1.15 | 20.30 | .615 | |
| | | | | 29.5 | 74.7 | | 4 |
| Febr. | | | 0 | 29.92 | 54.1 | | |
| | | | | 1.24 | 14.7 | 1.660 | |
| | | | | 28.68 | 68.8 | | 0 |
| Mar. | | | 1 | 30.02 | 50.7 | | |
| | | | | 1.36 | 18.7 | 1.768 | |
| | | | | 28.66 | 69.4 | | 0 |
| Apr. | | | 2 | 29.65 | 41.5 | | |
| | | | | .33 | 13.2 | .676 | |
| | | | | 29.32 | 54.7 | | 4 |
| May | 31.7 | 16.6 | .985 | 29.84 | 16.3 | | |
| | 48.3 | | 1 | .82 | 38.3 | 1.000 | |
| | | | | 29.2 | 54.6 | | 1 |
| June | 19.5 | 21.19 | .922 | 29.83 | 20.2 | | |
| | 41.4 | | 3 | 0.81 | 27.0 | 0.720 | |
| | | | | 29.02 | 47.2 | | 3 |
| July | 17.0 | 29 | 6.550 | 29.63 | 14.7 | | |
| | 46.0 | | 2 | 1.01 | 29.9 | 0.306 | |
| | | | | 28.62 | 44.6 | | 3 |
| Aug. | 19.8 | 12.5 | 2.500 | 29.62 | 35.2 | | |
| | 32.3 | | 3 | .76 | 12.1 | 6.300 | |
| | | | | 28.86 | 47.3 | | 2 |
| Sept. | | | 1.540 | 29.78 | 29.4 | | |
| | | | 2 | 1.28 | 23.7 | 3.465 | |
| | | | | 28.50 | 53.1 | | 2 |
| Oct. | | | 2.350 | 29.92 | 45.8 | | |
| | | | 0 | 1.21 | 17.2 | 2.025 | |
| | | | | 28.71 | 63 | | 2 |
| Nov. | 29.75 | 59.0 | | 30.20 | 53.9 | | |
| | .35 | 12.0 | .620 | 1.44 | 11.4 | 0.570 | |
| | 29.40 | 71.0 | 0 | 28.76 | 65.3 | | 4 |
| Dec. | 30.0 | 56.9 | | 30.7 | 57.8 | | |
| | 1.32 | 18.5 | 1.500 | 1.5 | 16.9 | 1.830 | |
| | 28.68 | 75.4 | 0 | 29.2 | 74.4 | | 2 |
| | | | | 20 935 | | | |
| | | | | 1738 | | | |

1738

1739

| | Bar. | Ther. | Rain. | died. | | Bar. | Ther. | Rain. | died. |
|--------------|----------------|--------------|-------|------------|--------------|----------------|--------------|--------------------|--------|
| <i>Jan.</i> | 30.16 28.21 | 52.8 72.3 | 19.5 | 1.788 8 | <i>Jan.</i> | 29.92 28.30 | 56.15 71. | 2.430 3 | |
| <i>Febr.</i> | 30.17 28.88 | 53.1 74.6 | 21.5 | .568 2 | <i>Febr.</i> | 29.98 28.98 | 51.5 66.8 | 15.3 2.487 3 | |
| <i>Mar.</i> | 29.87 28.52 | 46.0 56.4 | 20.4 | 1.189 1 | <i>Mar.</i> | 30.5 28.56 | 50.1 69.6 | 19.5 .814 2 | |
| <i>Apr.</i> | 29.93 28.52 | 42.2 61.7 | 19.5 | 1.230 3 | <i>Apr.</i> | 29.57 28.72 | 45. 65.8 | 20.8 2.585 5 | |
| <i>May</i> | 29.61 28.87 | 30.8 57.1 | 26.3 | 2.160 2 | <i>May</i> | 29.95 28.97 | 26.7 49.0 | 23.3 1.860 1 | |
| <i>June</i> | 29.73 28.77 | 24.7 48.9 | 24.2 | 2.420 0 | <i>June</i> | 29.77 28.97 | 28. 47.9 | 19.9 1.537 2 | |
| <i>July</i> | 29.89 29.32 | 16.4 40.6 | .242 | .624 2 | <i>July</i> | 29.89 29.18 | 31.7 41.6 | 9.9 1.965 3 | |
| <i>Aug.</i> | 29.82 29.20 | 33.7 45.7 | 12 | 1.418 1 | <i>Aug.</i> | 29.92 28.93 | 26.6 47.8 | 21.2 2.350 1 | |
| <i>Sept.</i> | 29.93 29.20 | 37.8 57.9 | 14.1 | 2.110 4 | <i>Sept.</i> | 29.67 28.86 | 37.1 54.7 | 17.6 1.903 4 | |
| <i>Oct.</i> | 30.10 28.45 | 46.4 61.1 | 14.7 | 1.640 3 | <i>Oct.</i> | 30.5 29.15 | 47.1 63.6 | 16.5 .522 1 | |
| <i>Nov.</i> | 30.1 28.88 | 53.6 71.2 | 17.6 | .692 5 | <i>Nov.</i> | 29.85 28.3 | 57.4 75.3 | 17.9 1.557 3 | |
| <i>Dec.</i> | 30.29 28.88 | 52.6 72.9 | 20.3 | 1.320 3 | <i>Dec.</i> | 29.86 28.87 | 58.9 86.7 | 27.8 1.650 2 | |
| | | | | 17.159 | | | | | 21.660 |

1740

1740

1741

| | Bar. | Ther. | Rain. | died. | | Bar. | Ther. | Rain. | died. |
|--------------|-------------------------|----------------------|----------------------|-------------------|--|-------------------------|----------------------|-----------------------|--------------|
| <i>Jan.</i> | 30.40 28.79 30.16 | 74.3 87.2 60.8 | 12.9 12.9 18.4 | .250 4 .060 | | 29.33 28.77 30.15 | 56.9 70.8 58.2 | 22.9 1.088 12.8 | |
| <i>Feb.</i> | 20.7 29.92 | 79.2 55.2 | 18.4 14.1 | 3 .632 | | 28.62 30.17 | 71. 54.8 | 12.8 1.41 | .618 .568 |
| <i>Mar.</i> | 29.12 29.96 | 69.3 48.4 | 14.7 | 6 0.872 | | 29.21 30.5 | 68.9 44.3 | 1.41 23.1 | .568 270. |
| <i>Apr.</i> | 28.93 29.87 | 63.1 41. | 19.8 | 3 1.036 | | 29.11 30.0 | 67.4 33.0 | 23.1 24.0 | 3 .441 |
| <i>May</i> | 29.1 30.11 | 60.8 36 | 19.8 | 1 1.430 | | 28.97 29.98 | 57.0 24.3 | 24.0 20.4 | 6 1.336 |
| <i>June</i> | 29.18 29.78 | 47.6 27.9 | 11.6 18.7 | 4 3.668 | | 29.18 29.93 | 44.7 20.0 | 20.4 22.7 | 7 .873 |
| <i>July</i> | 29.31 29.70 | 46.6 30.7 | 18.7 | 3.668 | | 29.33 29.95 | 42.7 27.2 | 22.7 13.4 | 4 1.633 |
| <i>Aug.</i> | 29.5 29.91 | 43.9 38.7 | 13.2 21.4 | 2.800 1.620 | | 29.41 29.98 | 40.6 32.0 | 13.4 16.1 | 2 4.935 |
| <i>Sept.</i> | 28.81 29.95 | 60.1 53.1 | 21.4 18.1 | 1.620 1.050 | | 28.52 29.98 | 48.1 43.8 | 16.1 13.4 | 1 1.460 |
| <i>Oct.</i> | 29.4 29.77 | 71.2 55 | 18.1 17.9 | 1.050 1.488 | | 28.65 30.7 | 57.2 49.1 | 13.4 15.9 | 2 1.960 |
| <i>Nov.</i> | 28.38 29.65 | 72.9 59.2 | 17.9 20.6 | 1.488 2.412 | | 28.79 29.96 | 65.0 59.9 | 15.9 17.7 | 8 0.490 |
| <i>Dec.</i> | 28.50 | 79.8 | 20.6 | 2.412 | | 28.98 | 77.6 | 17.7 | 13 |
| | | | | 17.318 | | | | | 15.702 |

1742

1742

1743

| | Bar. | Ther. | Rain. | died. | | Bar. | Ther. | Rain. | died. |
|--------------|------------------------|--------------|--------|-------|-------|------|-------|--------|-------|
| <i>Jan.</i> | 29.87 1.50 28.37 | 54.8 21.8 | 1.435 | | | | | .406 | |
| | | | | 13 | | | | | 3 |
| | 30.8 | 57.6 | | | | 58.9 | | | |
| <i>Feb.</i> | 1.09 28.99 | 14.2 | .863 | | | 5.3 | .365 | | |
| | | | | 6 | | 64.2 | | | 1 |
| | 30.9 | 57.0 | | | 29.85 | 55.7 | | | |
| <i>Mar.</i> | .74 29.35 | 12.9 | .055 | | 1.40 | 12.0 | 1.193 | | |
| | | | | 12 | 28.26 | 67.7 | | | 0 |
| | 30.19 | 45.5 | | | 29.82 | 48.0 | | | |
| <i>Apr.</i> | 1.64 28.55 | 17.0 | 1.908 | | .80 | 22.3 | 1.252 | | |
| | | | | 15 | 29.2 | 70.3 | | | 1 |
| | 30.3 | 31.5 | | | 30.10 | 32.3 | | | |
| <i>May</i> | .84 29.19 | 24.0 | 1.546 | | .98 | 18.7 | .868 | | |
| | | | | 3 | 20.12 | 51.0 | | | 2 |
| | 29.97 | 25.7 | | | 29.86 | 29.0 | | | |
| <i>June</i> | .69 29.28 | 16.9 | 1.430 | | .60 | 15.0 | .379 | | |
| | | | | 0 | 29.26 | 44.6 | | | 0 |
| | 29.94 | 31.4 | | | 29.75 | 27.7 | | | |
| <i>July</i> | .87 29.7 | 14.3 | 3.136 | | .95 | 15.7 | 5.230 | | |
| | | | | 5 | 28.80 | 47.4 | | | 8 |
| | 30.5 | 28.1 | | | 29.98 | 27.7 | | | |
| <i>Aug.</i> | .51 29.54 | 16.4 | 0.160 | | 1.60 | 15.0 | 1.124 | | |
| | | | | 6 | 28.28 | 43.3 | | | 1 |
| | 29.90 | 34.1 | | | 29.90 | 33.4 | | | |
| <i>Sept.</i> | 1.17 28.73 | 23.0 | 1.778 | | .55 | 18.7 | .008 | | |
| | | | | 3 | 29.35 | 52.1 | | | 4 |
| | 29.98 | 45. | | | 29.86 | 44.3 | | | |
| <i>Oct.</i> | 1.76 28.22 | 21.0 | 2.386 | | .94 | 14.0 | 3.088 | | |
| | | | | 2 | 28.92 | 58.3 | | | 2 |
| | 29.57 | 59.0 | | | 29.90 | 48.9 | | | |
| <i>Nov</i> | 1.29 28.28 | 9.7 | 2.417 | | 1.4 | 14.8 | 0.724 | | |
| | | | | 3 | 28.92 | 63.7 | | | 0 |
| | | | | | 30.22 | 55.0 | | | |
| <i>Dec.</i> | | | .163 | | 1.52 | 16.7 | 1.427 | | |
| | | | | 5 | 28.70 | 71.7 | | | 1 |
| | | | | | | | | | |
| | | | 17.277 | | | | | 16.064 | |

(338)

1744

1745

| | Bar. | Ther. | Rain. | died. | | Bar. | Ther. | Rain. | died. |
|--------------|---------------|--------------|--------|-------|--|---------------|--------------|--------|-------|
| <i>Jan.</i> | 30.20 1.15 | 60. 17.7 | 1.198 | 2 | | 30.5 1.58 | 62.7 16.5 | .827 | |
| | 29.5 | 77.7 | | | | 28.47 | 79.2 | | 1 |
| <i>Febr.</i> | 30.12 1.67 | 53.3 19.4 | .941 | | | 30.25 1.56 | 67.9 9.0 | .572 | |
| | 28.45 | 72.7 | | 1 | | 28.69 | 76.9 | | 3 |
| <i>Mar.</i> | 29.92 1.5 | 49.4 18.3 | 1.428 | | | 29.73 .98 | 45.9 32.7 | 2.541 | |
| | 28.87 | 67.7 | | 2 | | 28.75 | 78.6 | | 2 |
| <i>Apr.</i> | 29.93 1.18 | 44.7 23.1 | 2.759 | | | 29.90 1.38 | 50.4 10.9 | 1.708 | |
| | 28.75 | 67.8 | | 5 | | 28.52 | 61.3 | | 2 |
| <i>May</i> | 29.91 .97 | 28.7 27.4 | 1.257 | | | 29.98 1.32 | 32.2 20.5 | 1.137 | |
| | 28.94 | 56.1 | | 0 | | 28.56 | 52.7 | | 1 |
| <i>June</i> | 29.86 .89 | 25.3 16.1 | 3.479 | | | 29.83 .73 | 32.0 16.5 | 3.451 | |
| | 28.97 | 41.4 | | 2 | | 29.10 | 48.5 | | 2 |
| <i>July</i> | 29.89 .89 | 29.7 13.5 | .820 | | | 29.99 .70 | 32.3 13.4 | .724 | |
| | 29.0 | 43.2 | | 7 | | 29.29 | 45.7 | | 1 |
| <i>Aug.</i> | 29.91 1.1 | 31.2 16.9 | .957 | | | 29.80 .94 | 32.6 13.4 | 3.934 | |
| | 28.90 | 48.1 | | 1 | | 29.92 | 46.0 | | 0 |
| <i>Sept.</i> | 29.66 .86 | 34.2 16.2 | 3.298 | | | 30.0 .68 | 32.6 13.1 | .899 | |
| | 28.80 | 50.4 | | 1 | | 29.32 | 45.7 | | 1 |
| <i>Oct.</i> | 29.92 1.85 | 46.6 14.2 | 3.142 | | | 29.90 1.31 | 43.8 15.5 | 1.460 | |
| | 28.7 | 60.8 | | 1 | | 28.59 | 59.3 | | 0 |
| <i>Nov.</i> | 30.10 1.46 | 50.7 23.0 | 2.276 | | | 30.11 1.73 | 53.9 18.0 | 2.067 | |
| | 28.64 | 73.7 | | 1 | | 28.38 | 71.9 | | 0 |
| <i>Dec.</i> | 30.88 1.20 | 50.0 18.1 | 1.168 | | | 30.11 1.40 | 57.5 13.4 | 1.233 | |
| | 28.82 | 74.7 | | 3 | | 28.71 | 70.7 | | 4 |
| | | | 22.728 | | | | | 20.553 | |

1746

1746

1747

| | Bar. | Ther. | Rain. | died. | | Bar. | Ther. | Rain. | died. |
|--------------|----------------|--------------|-------|--------|--|----------------|--------------|-------|--------|
| <i>Jan.</i> | 30.4 28.88 | 55.2 75.3 | 20.1 | 1.758 | | 29.97 28.45 | 54.8 76.1 | 21.3 | 2.862 |
| | 1.16 | | | 2 | | 1.52 | | | 4 |
| <i>Febr.</i> | 30.24 28.28 | 52.9 79.2 | 16.3 | 1.706 | | 29.90 28.67 | 55.3 75.2 | 19.9 | 1.211 |
| | 1.96 | | | 3 | | 1.29 | | | 3 |
| <i>Mar.</i> | 30.3 28.64 | 53.0 73.9 | 20.9 | 1.880 | | 30.17 28.58 | 56.4 68.9 | 12.5 | 1.240 |
| | 1.39 | | | 1 | | 1.59 | | | 3 |
| <i>Apr.</i> | 30.0 28.85 | 39.4 63.9 | 24.5 | .762 | | 29.97 29.23 | 42. 74 | 18.0 | 1.017 |
| | 1.15 | | | 5 | | .74 | | | 4 |
| <i>May</i> | 29.85 29.0 | 26.5 47.7 | 21.2 | .546 | | 30.0 29.21 | 30.3 56.0 | 19.7 | 2.829 |
| | .85 | | | 4 | | .79 | | | 1 |
| <i>June</i> | 29.34 28.69 | 29.4 48.7 | 18.4 | 2.900 | | 29.82 28.97 | 28.4 45.3 | 16.9 | 1.562 |
| | 1.15 | | | 1 | | .85 | | | 1 |
| <i>July</i> | 29.82 29.20 | 19.3 43.8 | 24.5 | 1.442 | | 29.99 29.2 | 29.7 44.0 | 14.3 | 2.248 |
| | .62 | | | 1 | | .9 | | | 1 |
| <i>Aug.</i> | 29.88 29.40 | 34.5 45.2 | 10.7 | .456 | | 29.92 29.24 | 17.2 39.6 | 22.4 | 0.071 |
| | .48 | | | 2 | | .68 | | | 2 |
| <i>Sept.</i> | 29.72 28.95 | 41.5 56.1 | 14.6 | 1.633 | | 29.87 28.81 | 30.3 54.3 | 24.0 | 1.922 |
| | .77 | | | 4 | | 1.06 | | | 6 |
| <i>Oct.</i> | 30.8 28.57 | 52.1 66.1 | 14.0 | 2.274 | | 30.11 29.26 | 45.1 54.0 | 18.9 | 0.582 |
| | 1.51 | | | 3 | | .85 | | | 2 |
| <i>Nov.</i> | 29.98 28.43 | 59.7 70.9 | 11.2 | 1.789 | | 30.15 28.55 | 40.8 67.7 | 18.9 | 4.920 |
| | 1.55 | | | 4 | | 1.60 | | | 0 |
| <i>Dec.</i> | 30.3 28.58 | 50.7 76.9 | 20.2 | 1.279 | | 30.23 27.92 | 55.3 66.4 | 21.1 | 3.624 |
| | 1.45 | | | 0 | | 2.31 | | | 0 |
| | | | | 18.425 | | | | | 24.088 |

1749

| | Bar. | Tber. | Rain. | died. |
|-------|-------------------------|----------------------|-----------------------|-----------------|
| Jan. | 30.18 29.28 29.93 | 62.2 73.5 73.0 | 11.3 0.938 14.0 | 0 0 0.369 |
| Febr. | 29.00 29.80 28.59 | 77.0 53.0 73.4 | 20.4 1.946 2 | 0 0 2 |
| Apr. | 29.76 28.80 | 46.3 64.8 | 18.5 1.367 | 0 0 |
| May | 30.5 29.0 | 33.3 52.3 | 19.0 1.178 | 5 5 |
| Jun. | 29.98 29.35 29.92 | 20.7 13.3 22.9 | 2.26 3.044 21.4 | 2 2 0.484 |
| Jul. | 29.6 30.5 | 44.3 49.0 | 1.305 14.5 | 0 2 |
| Aug. | 29.20 30.2 | 44.1 33.6 | 13.7 0.553 | 1 1 |
| Sept. | 29.31 30.8 | 47.3 44.0 | 19.4 1.060 | 0 0 |
| Oct. | 28.64 30.20 | 53.4 49.9 | 25.1 0.430 | 0 0 |
| Nov. | 29.18 29.90 | 75.0 49.6 | 19.3 1.549 | 0 0 |
| Dec. | 27.57 | 58.9 | 17.223 | 0 |

The

The Monthly and Yearly Quantities of Rain that has fallen at *Pickering*, in the East Riding of *Yorkshire*, taken by the ingenious *Thomas Robinson Esq*; there, for the following Years. His Receiver and Cistern are both square, one 38 Inches in Circumference, the other 14. $4\frac{1}{4}$ Pints of Water give the Depth of an Inch in his Cistern. To 1743 is measured by Inches deep, the rest by Pints drawn out of the Cistern.

| Year | 1736 | 1737 | 1739 | 1740 | 1741 | 1742 |
|--------------|--------|--------|--------|--------|--------|-------|
| <i>Apr.</i> | 2.100 | 1.578 | 4.400 | 0.205 | 0.548 | 0.950 |
| <i>May</i> | 2.615 | 1.073 | 3.351 | 0.802 | 3.400 | 0.207 |
| <i>June</i> | .181 | 2.322 | 3.400 | 1.100 | 2.422 | 2.190 |
| <i>July</i> | 1.968 | 2.658 | 3.823 | 0.504 | 3.543 | 0.830 |
| <i>Aug.</i> | 2.247 | 3.330 | 2.840 | 1.342 | 0.482 | |
| <i>Sept.</i> | 2.500 | 1.285 | 3.742 | 5.924 | 3.145 | |
| <i>Oct.</i> | 3.529 | 3.742 | 3.163 | 4.498 | 4.300 | |
| <i>Nov.</i> | 2.806 | 2.442 | 3.800 | 4.000 | 2.500 | |
| <i>Dec.</i> | 4.300 | 2.165 | 3.000 | | | |
| <i>Jan.</i> | 2.539 | 2.235 | 1.854 | 3.131 | 11.500 | 1.020 |
| <i>Febr.</i> | 1.283 | 3.453 | 1.793 | | 0.645 | 0.430 |
| <i>Mar.</i> | 2.044 | 1.915 | 2.451 | 0.504 | 0.420 | 0.000 |
| Total | 27.802 | 28.499 | 37.672 | 22.000 | 33.205 | |

| Year | 1743 | 1744 | 1745 | 1746 | 1747 | 1748 |
|-------|------|------|------|-----------------|------|------|
| | 27 | 28 | 14 | 7 | 2 | 13 |
| | 8 | 6 | 10 | $\frac{1}{2}$ | 16 | 11 |
| | 8 | 13 | 7 | 13 | 4 | 6 |
| | 8 | 3 | 8 | $5\frac{1}{2}$ | 4 | 4 |
| | 8 | 10 | 7 | 5 | 0 | 8 |
| | 0 | 8 | 1 | 14 | 13 | 3 |
| | 37 | 18 | 7 | $14\frac{1}{2}$ | 8 | 13 |
| | 21 | 12 | 20 | 11 | 17 | 3 |
| | 11 | 10 | 8 | 13 | 19 | 13 |
| | 13 | 20 | 5 | $25\frac{1}{2}$ | 7 | 14 |
| | 9 | 7 | 22 | 13 | 9 | |
| | 38 | 20 | 21 | 13 | 11 | |
| Pints | 188 | 155 | 130 | 135 | 110 | |

A General Account of the Weather at Lyndon in Rutland.

This Account was first written about 1741; therefore the Part before that Time was written by Memory, and such other Helps as I had; yet I believe there are no great Mistakes in it.

1733. **T**HE Summer 1733. was hot and dry, and June 27, being two Days after an excessive hot Day, there came a fierce Thunder and Hail-storm, with Hail stones of perfect Ice, and some of them about $1\frac{1}{2}$ Inch over and $\frac{1}{4}$ of an Inch thick. The Autumn was so remarkably fine and warm, that the Birds built their Nests in November, and except a Fort-night's Frost in January, it was mild, dry, fine, and more like Spring than Winter, till the End of February, when it grew wet, and lasted so most Part of 1734. and in the Winter following there was not much Frost, but a remarkably high Wind in January.
1734. The Summer 1735. was very wet, there being seldom 3 Days together fair, and scarce any Weather like Summer except about the Beginning of Harvest. Water lay at the Ends of the Lands on the top of the Hill in *Edyweston-Field* till August; and though no Ponds were near, there were in some of them many young Periwinkles. The Autumn and Winter were also wet, and there was a great Rot among Sheep; but only small broken Frosts, the greatest of which was in

in *February*, which yet was a remarkably wet 1736.
 Month, but grew drier toward the End. *March*
 began cold and windy; but from *March* 12, to
April 8, was very warm, growing Spring-wea-
 ther, the Wind being mostly Southerly; but
 afterwards came dry and cold Northerly Winds,
 and but little hot Weather. Toward the End
 of *June* it grew showery, and *July* 3, 4, and
 5, in a continual and heavy Rain, there came
 near 5 Inches deep of Water, which made a
 great Flood, and carried away a great deal of
 Hay off the Meadows. The End of the Year
 was moderate and a good Seed-time, and no
 great Frosts in the Winter. The Spring 1737. 1737.
 began wet; but after *March* it was dry most
 part of the Summer, but variable as to Heat,
 frequently changing from cold to very hot in a
 few Days; and the Ground was very much
 burnt in *May* and *June*, and still more in *July*.
 The Crop of Wheat and Rye was good, Bar-
 ley pretty well; but Beans and Peas, through
 the Dryness of the Season, were very bad; most
 of the Wheat was got in before the wet Wea-
 ther, which came in *August* and the following
 Months, and damaged the latter Part of the
 Harvest, but made a fine Autumn for Grass.
 An open Winter follow'd, with only short
 Frosts, and after a somewhat cold Spring, came 1738.
 a hot showery, but fine and growing *May*, with
 great Plenty of Grass. It continued a wet Sum-
 mer, but not so fine as in *May*; but the Au-
 tumn was drier, so that there was less Rain in
 this whole Year, than in the former.

739. The Year 1739. began wet; some warm Weather in *February* brought Plants forward; but the cold, wet, and blasting Winds in *March* and the rest of this backward Spring, blasted almost all the Blossoms; and the North Sides of the Hedges, which lay open to the cold Winds, were scorch'd by them. It was cold and wet Summer, but Part of Hay-time was fair; and again in Harvest, till most of the Wheat and Barley was carried. The Autumn was not quite so wet as before; and in *October* it grew cold with N. E. Winds; and a sharp Frost for 11 Days came in *November*. But the great Frost began *December* 25, which with a strong, excessively sharp, and freezing East Wind, destroy'd what Grass remain'd on the Ground. Almost constant Northerly Winds
740. attended this Frost, and lasted all the Spring, and Part of the following Summer. This settled Frost, in which there was but little Snow, having by its Length and great Severity, kill'd most of the small Birds, and destroy'd or damaged great Numbers of Plants, went away *February* 16; but so cold, dry, stern, cutting and backward a Spring follow'd, as can hardly be match'd; and the Summer was cold and dry till almost *August*, with scarce any Grass, and very little Hay; but the Harvest in this Country, and some others, was good; but in some Parts of *England* very bad. Before the Frost in this Country, Wheat was scarce 4 Shillings a Strike; but that raised the Price to 6 Shillings, till this Harvest lower'd it to 5 Shillings, about which Price it continued till the Harvest 1741. made

made it fall to its usual Price; but where the Crop was more destroy'd, it was dearer, even to 9 or 10 Shillings a Strike. After heavy Rain *July 30*, it was a moist Autumn, and the Season was, and had been all this Year, so backward, that some Wheat was cut before it was fully ripe, the latter End of *August*; and Beans and Pease were not finish'd till near *Michaelmas*. The cold Weather began soon this Year; for it snow'd *October 1*; and a Frost about the 20th froze the Apples on the Trees before they were Ripe; and it continued a cold Winter with frosty Weather; the longest Frost being about a Fortnight long, broke *December 21*; And there was another sharp Frost in *January*, but 1741. some warm Spring Weather came the beginning of *February*: But though there was fine Weather several times this Spring, there was also such stern and cold Weather, as made it a backward and blasting Season; and the Spring and Summer, were so dry that from *January* to *August* there was scarce half the Rain which usually falls in that time. There was however more Grass this Spring than last, as there was more warm Weather; but it burnt away very much, in the almost constant hot Weather from about *May 20*, till *September*. There was so little Hay this Year, that a Load, which has sometimes been sold for 12 or 15 Shillings, could scarcely be bought for 50s. but the Harvest was mostly good; though Beans and Pease were bad, as is usual in dry Years. An Inch of Rain about *August 20*, made the Ground green; but it burnt again the Beginning of *September*; and

and then between 5th and 19th came $4\frac{1}{2}$ Inches of Rain with cold Weather ; but it grew hot again afterward, and lasted so till some time in *October*, which made Plenty of Grass. It was
 1742. mostly an open Winter, and mild in *January* ; but the Beginning of *February* it turn'd cold, and continued a cold and backward Spring, and was dry till *April*, when near 2 Inches of Rain made more Grass than had been the two last Springs ; but the Trees were very backward.

This Summer was very dry in some Places, particularly about *London*, where there was very little Rain till toward the End of *June* ; and all the way down, the nearer this Country, the more Grass there was. Here also the Weather was mostly dry, and scarce any Rain in *March* ; but after that there was no Month without Rain. And though the Ground began to burn 3 times, some Rain soon came and recover'd the Grass ; and there proved a moderate Crop of Hay ; but it was a wet Hay-time from the Middle of *June* to the Middle of *July*. From toward the End of *July*, till the Beginning of *September*, was the longest dry Season this Year, in which the Harvest was well gotten ; and the Crop of Wheat was good ; but the Barley bad, being of two Growths. The Autumn was mostly cold and wet, especially in *November*. After a very sharp Frost in *December*, the Winter was mild ;
 1743. but it was all so dry, that in *February* the Roads were good ; and in many Places they wanted Water, the Springs being even then low. The Spring was dry, cold and backward ; and the Summer dry, except *July*, which was very wet,
 and

and made every thing grow very fast, and many Trees shoot again, which had ceased growing before. There was this Year a general good Crop of all Sorts of Grain, and a good Time to get it in ; for after *July* there was scarce any Rain till *October*, which made the Springs run slower than was almost ever known. The Winter was in general open and dry ; so that 1744. in *February* the Roads were pretty good, and the Springs were low, though not so low as last Spring ; but the End of *February*, all *March*, and Part of *April*, there came Rain which soak'd the Ground, and made the Springs run as the used to do. This Summer was in many Places complain'd of as very dry ; but in this Country, and chiefly at this Town, we were never very long without Rain ; for a heavy Thunder-Shower, which reach'd but a little Way, with some other Rain in *June*, were the main Supports of our Grass, which at this Town never quite failed us. But the longest dry Time was in *July*, and *August*, which suited the Hay-time and Harvest very well. There was a pretty good Crop of Hay, and in all Places a good Crop of Corn, which in this Country was well gotten ; but in some Places, particularly in the North, South, and West of *England*, much of the Harvest, and even some of the Wheat, was spoil'd by the great Rains, which came in some Places sooner, but chiefly in *September* and *October* ; of which they had a great deal more than we ; though with us also, it was a wet Season. The Winter was a cold one ; and I never before remember, so late in the Year,

such

1745. such a settled Frost as there was all *February*, and which lasted into *March*. After this Frost, brisk S.W. Winds brought a great deal of Rain; but about *March* 20, there came some finer and warmer Weather than had been, at that Time of the Year, for several Years before; but it did not last long, for it was a cold and backward Spring, with frequent Rain. The Summer was mostly cold; and in *June*, and Part of *August*, very wet; and *August* 6th there fell near 2 Inches of Rain, with a great deal of Thunder and Lightning, for a great while about 8 Flashes in a Minute, and did Mischief in several Parts of *England*: But both Hay-time and Harvest were good here, though the Hay was spoil'd towards *London*. The Crop of Wheat was worse this Year than last; but the Barley was very good; so that Wheat sold for near 3 times as much as Barley. As the Spring and Beginning of Summer was very windy; so the latter End of it, and Autumn, was mostly calm and fine, till the End of *October*. The first Fortnight in *November*, and most Part of *December*, was dark, cloudy, calm, and moist or misty Weather, but the rest of these Months was mostly short and broken Frosts. The
1746. Year 1746 began with a clear Frost, but so white as to look almost like Snow; this, with some Thaws and Wind between, lasted till near the End of *January*, when in one Night came a great and sudden Snow, and continued frosty and sometimes Snow, or rainy, to the Equinox; and the rest of *March* was partly fine and partly wet: After which the Spring was dry,

dry, but sometimes warm, and sometimes cold ; but almost all *May* was hot, with a N.E. Wind, and vast Swarms of great Gnats, which stinging many People, made their Legs and Arms swell greatly ; and such Numbers of Caterpillars were on the Gooseberry and Currant Bushes, that many were very near strip'd of their Leaves. When the Gnats had been very numerous and troublesome about a Fortnight, their Number dwindled about *May* 20 ; and soon after, as it grew showery, and was a windy and wet *June*, few if any of them were left. Between the Showers, Bees got considerably ; but so fast, when it grew dry Weather in the Beginning of *July*, that *July* Swarms, which are generally worth little, got this Year strong enough to stand the Winter ; one of them, the second Week after they were swarm'd, gaining $1\frac{3}{4}$ lb in weight each Day. Whether this was caused by the vast Numbers of white Trefoil Flowers then in Blow, (as there was vast Plenty of them in 1741. when also the Bees were very rich) or for what other Reason, except dry Weather, I do not know. The Crops of Hay were but small, yet well gotten ; but the Crop of Grain was in general good, and well gotten, besides a large Stock of old left ; and therefore cheap ; for in Autumn, Wheat sold for about 20s. a Quarter, Rye for 14s. Barley 10s 6d. Oats 8s. or 8s 6d. and Pease 15s. or 16s. The latter Part of the Summer was mostly dry, which left the Ground very bare of Grass against Winter ; for the Rain which came in *October*, was too late to produce much Grass.

The

The Distemper among Cows, which since the Summer 1745, has so much afflicted the Counties about *London*, creeping Northward, came in Autumn into this County; and at *Ketton* they lost about 150 Beasts out of a Herd of between 200 and 300. but this Year it did not spread in any other Town it visited in this County.

A sore Judgment has this Distemper been on *Europe*; for after having afflicted *Italy*, *France*, the *Low Countries*, *Germany*, and severely *Denmark*, it came hither; and as in the West of *England*, after the great Frost in 1740, there was little less than a Famine, and the North West was last Year plagued with the Rebels, and traversing of Armies; so has the Middle been distressed by this Distemper, which gradually creeps farther; and how far it may yet spread, *God* only knows. The best Use we can make of these Afflictions, and the most likely way to be deliver'd from them, is to consider that *God* does not willingly afflict the Children of Men; but that, *Famine* and *Plague*, *Tribulation* and *Anguish* are sent as *Scourges* for *Amendment*. But though all these *Plagues* are come upon us,--Yet have we not pray'd before the Lord, that we might turn every one from the Imaginations of his wicked Heart. Wherefore the Lord hath watch'd over us for evil. *God* grant therefore, that we may seriously lay these Things to Heart, and that now his Judgments are in the Earth, the Inhabitants of the World may learn Righteousness. After an Autumn so bare of Grass, a mild Winter was very seasonable, and such it mostly proved; for the Grass grew

grew a little even in *December* and *January*, and considerably the Beginning of *February*; and it was mostly wet, especially in *January*. But toward the End of *February*, a Frost and Snow stop'd the Spring, which was coming on so fast; and cold Weather all *March*, put it off till *April*; however, it was a fine Seed-time. And in *April* the Spring made all Things grow, till dry Weather began to stop them the Beginning of *May*. But this did not last long; for the rest of *May*, all *June*, except the Middle, and till *July* 6, was a wet Season, which made Plenty of Grass, great Crops of Hay, and the Grain rank, a good deal of which was laid, and some grown through; and the first cut Hay was spoil'd. But as it came a dry and hot Season afterward, most of the Hay was well gotten, and the laid Corn was not spoil'd so much as was fear'd, for the Crop was good, and well gotten; but the Heat made a great deal shed in the Field; for though there was scarce one wet Day all Harvest, yet so great a Bulk could not be brought Home, before the violent Heat over-ripen'd it. Most Part of *July*, all *August*, and Part of *September*, was dry and hot, especially *August*, which was one of the most hot and burning Months ever known, with scarce any Rain, but Northern Lights almost every Night. The Autumn was dry and fine till the End of *November*, which left the Ground very bare against Winter; but the last of that Month, in one Night came a Snow 2 Feet deep, which with wet Weather following it, made great Floods, broke down several Fen-banks, and laid almost

1748.

that whole Country under Water. But after that, the Winter was not in general wet, though often a little Snow, almost daily in part of *March*. It was mostly frosty Weather, yet seldom a settled Frost for 3 Days together, very changable Winds, often misty and rimy in *January* and *February*; and whereas *November* was fine, there was very little Sun after. On the whole, it was very odd Weather, and may properly be called the snowy Winter.

The latter End of last Summer, the Murrain again visited this County; and while the Weather was dry, the Fields being open, it spread like Wild-fire, and carried Destruction with it; for I believe in this small County, several thousand Beasts perish'd by it. But the rest of the Winter, though it has sometimes spread, yet not near so many have fallen; and I believe fewer have died than did in Autumn; and in Spring it almost ceased in this County. God grant that we may at length *know the Things that belong to our Peace*, and may *sin no more lest a worse thing come unto us*.

The Seasons of late Years have been unfavourable; and this is the fourth Spring running, in which a frosty *February* has carried on the Winter a great way in *March*; and with mostly dry latter Ends of the Summer, and pleasant but not growing Autumns, which left the Ground without Grass against Winter, has spent a great deal of Fodder, as this Winter has done to a great Degree.

This Spring 1748, was, I think, the latest I ever knew; there being scarce the least Appearance

pearance of it before the middle of *March*, and very little till after the Middle of *April*; and on the Clay-Ground, the Wheat look'd then almost as bare as if just sow'd; nor was there any Grass: But when once the Spring came, every thing grew very fast, the Wheat-lands were almost cover'd in a Fortnight, and there has seldom been known more Grass, than there was this Year; for the Weather was generally showery, and sometimes, with and after Thunder, a great deal of Rain. This Year there were many Insects, particularly Caterpillars, and in some Places in *May* a red Flie was very troublesome in biting Peoples Legs, which made them swell very much. A violent Heat, and very wet Air *June 11*, and followed *June 12*, by a great deal of Thunder for 36 Hours, and some of it violent, reach'd from *Edinburgh* to *Paris*; only at *Paris* the Heat was one Day later than here. But though the Year was so showery, there was often fine Weather between, especially in *June* which was hot; and, except the Week after the Thunder, generally fine though showery, and the Hay-time was not in general bad, though there was a very wet Week toward the End of it, and it lasted a great while; for there was so much Grass, that many People laid more Grounds than they at first design'd. There was in general a very plentiful Harvest; only it is said some Oats in the Fens did not ripen well; and where the Harvest was earlier than it was here, they had good Weather for it, the

latter End of *July* and Beginning of *August*. But very little was got in here before *August* 19th, and it was then so showery, that there was Danger that a great deal of Wheat and Barley which was then cut, might be spoil'd, till it turn'd fair and fine *August* 22d. which continued; and I hope not much Harm was done, for there was scarce a Drop of Rain after; and it has lasted mostly dry, pleasant, calm and warm ever since, except some cold Weather with frosty Mornings, followed by some Rain the Middle of *October*. But the wet Weather this Summer did not last in all Places, so long as it did here; for beyond *Northampton* and in *Oxfordshire*, there was very little Rain after the Beginning of Hay-time, and in *Autumn*, the Ground was very bare and Water scarce, and probably it was so in some other Places.

The Distemper among the Cattle this Spring almost entirely ceased in this County, and I believe abated in other Parts; but it has got as far North as *Yorkshire*, where it still is in some measure: And as it did the two last Years, so it broke out afresh about Harvest this Year, by infected Beasts brought from other Parts, and is now very bad in *Leicestershire*, where almost all dye who have it; but it is not so general in this County, nor in several other Places as it was last Year, nor so mortal here as it was. Whether by the Plenty of Grass there was this Year, scouring the Cattle more than they lately have been, or for what other Reason I cannot say; another Method of Cure has however been
this

this Year tried, which many thought too much neglected before; I mean, applying to him, in whose Hands are the Issues of Life and Death, who and who only can deliver us. But though this Plague is not yet ceased, another already hangs over us, which if God cause to *come upon us to the uttermost*, though *the Land be as the Garden of Eden before them*, yet *behind them a desolate Wilderness*, I mean the Locusts, who having eaten every green Herb in some parts of *Transylvania*, are come into this Kingdom, where, as well as in *Bohemia*, they lay their Eggs, threatening a severer Scourge another Year. However as they have not here committed their Ravages as yet, I say no more about them; but taking Occasion from these and other Punishments lately sent on a wicked World, I conclude with *Isaiah*, *Let the Wicked forsake his Way, and the unrighteous Man his Thoughts, and let him return unto the Lord; and he will have mercy upon him, and to our God, for he will abundantly pardon.*

October 28, 1748.

December 3, 1748. the Thermometer being 49,6 was the warmest I ever felt in *December*; and indeed that whole Month, and most Part of *January* was mild, but windy and wet enough.

The different Quantities of Rain that has fallen in several Places of *England*, mentioned in the *Table*, having been taken by fundry judicious Persons ; hereby,

1. Our Curiosity is greatly gratified, when we know, that suppose the Rain was neither drunk in by, nor run off from the Earth, but remained yearly stagnant on its Surface, what Depth it measures yearly.

2. Not only have we the different Quantities of several Years Rains, but the Quantities in several Places. The highest of *Townley* annual Rains in 22 Years, was $51\frac{1}{2}$ Inches, the lowest or least was $31\frac{1}{2}$ Inches, about 2-5th odds. The greatest Quantity in *Essex* in one Year of 27 was 27 Inches, the least $11\frac{1}{3}$ th. The most that fell in one Year of 11 at *Plymouth*, was $37\frac{1}{2}$ Inches, the least $17\frac{1}{2}$. The most that fell at *Southwick* in one Year of 15 was 27 Inches, the least was 13. There fell in one Year of 6 at *Darlington* $29\frac{3}{4}$ Inches, in another only 16. At *Malton* (not far from *Darlington*) in one Year of six fell above $37\frac{1}{2}$ Inches, in another 22. In *Kent* in one Year of 5 fell $29\frac{3}{4}$, in another scarce 19.

3. Not only have we in several Years, and in different Parts of the Country, various Quantities of Rain ; but the same Year is far from making an equal Distribution of its Moisture in all Places, suitable to their Demands. In 1697 they had Rain enough at *Townley*, but a dry Year in *Essex*. 98 was rainy in the latter, but the former was far short of its Medium. In 99. *Townley* was better watered, but *Essex* was
pinched

pinched. 1702. was the rainiest Year of all in *Lancashire*, but moderate enough in *Essex*. 1714, 1723, 40, 41, were a general Drought, &c. By looking back into the Table we shall find as great Odds in the Months as in the Years, some pouring out Plenty of Rain in some Places, and little enough on others.

4. We here see what Situations are exposed to most Rains, and these are either very high and lofty mountainous Countries, and their sub-jacent Valleys (especially where not far from the Sea) for the Clouds loaded with Vapours raised from the Ocean, being driven by the Winds against the Tops of those towering Mountains, are stopt, and retarded in their Course, and being broken pour down their Waters. But the Remainder of those Vapours, or such Clouds as are elevated higher in the Atmosphere, being carried by the same Winds over the Tops of the Mountains into remoter Vallies, at a greater Distance, hemm'd in by other Mountains, have a less Quantity of Rain or Vapours, left in them, to let fall in the latter, than in the former Vallies. For this Reason champain Countries have less Rain than Mountainous, and inland plain Countries have less than Coasters. And Places or Valleys lying under the East-side of high Hills distant from the Sea, have less West and South-west Rains, than when they come from the East, South-east, or North-east; and Vallies near and facing the Sea, over which blow our frequentest Winds, have the ofteneft Rains. Hence where there is a Country which is fanned only with

one Wind, and has a long Ridge of high Mountains in it, reach above the lower Atmosphere, the Valleys or Country sheltered from that Wind will have very little or no Rain at all, but be watered with Dew, or Snow-Water, from the Mountains - - - 2. Coasters or Borderers on Marshes about new or full Moon, with a Breeze from the Marshes, have a missing Rain called Tide-Weather, which may be from the Vapours rising from the Tides that cover a large Tract of Land in the Neighbourhood; yet the Mercury may stand high in the Barometer all the while, these being only local Vapours, and the Atmosphere in the general not affected. - - -

3. Very woody Countries afford not only more and frequenter Rains, but oftener Thunder, Lightning, and Earthquakes, as they emit greater Plenty of Vapours, arising not only from the Earth and Helbage, but, in the Summer and Harvest especially, from innumerable Surfaces of Leaves, Twigs, Branches, and Trunks of Wood and Trees, whilst their Juices circulate; as is evident not only from the vast Expence of Water from narrow-mouth'd Bottles, in the Nutrition and Growth of Plants put in to grow, but also from the Turgidness and Stiffness of Leaves of Trees and Flowers early in a Summer Morning, and their flagging, languishing Condition in a clear hot Afternoon.

5. We see what Proportion wet Years bear to dry and moderate; at *Townley* 1682, 1686, 1702, were very rainy; the annual Medium of these Years was about 50, Inches; 79, 81, 83, 84, 85, 91, 92, 98, were all dry Years; the yearly

yearly Medium of their Rain was $35\frac{1}{2}$ Inches. The very wet Years in *Essex* (of those whose Register we have) were 1698, 1706, 09, 15, 1739. The Medium of these Years Rain was scarce $25\frac{1}{2}$ Inches. Their dry Years were 1697, 99, 1701, 07, 10, 14, 16, 40, 41; the Medium of whose yearly Rain is scarce 16 Inches. But 1714 was the driest of them all; for there fell only 11 Inches that whole Year; and 1739 was the wettest in *Essex*. Of 11 Years at *Plymouth*, 1730, 31, 37, were driest; their Medium was $23\frac{1}{2}$ Inches of Rain; their wettest were 1728, 34, 36, the Medium of whose Rain was near 37 Inches. The rainiest Years at *Southwick* were 1726, 28, 34; their yearly Mean was $26\frac{1}{2}$ Inches. Their driest Years were 1731, 32, 33, 38, 40. The yearly Mean of these Years was scarce 17 Inches.

6. We may here observe the Proportion of Rain one Season bears to the other. The 22 Winter Quarters of *Townley* Rains (beginning with *November*) amounted to 246 Inches. The Total of the three Spring Months was about 193 Inches. The Whole of the Summer Months was 197 Inches; and of all the Harvest Months 282 Inches. The total quarterly Rain for 17 Years are (omitting the Fractions) Winter 64 Inches, Spring 64, Summer 86 Harvest 100 Inches. *Kent* 5 Years Rain. Winter $33\frac{1}{2}$ Inches, Spring $24\frac{1}{2}$, Summer Harvest $28\frac{1}{2}$. The 7 Years *London* Rain Winter 32 Inches, Spring 31, Summer Harvest $35\frac{1}{2}$; for the last 7 Years June, July, and August had 10, 11, 12 Inches.

there; hence an uncommon Quantity in the Summer Months. *Southwick* quarterly Rains for 15 Years were, Winter $79\frac{1}{2}$, Spring 66, Summer 94, Harvest $96\frac{1}{2}$ Inches. *Darlington's* 6 Years quarterly Rains are, Winter 19 Inches, Spring $28\frac{1}{2}$, Summer $42\frac{1}{2}$, Harvest $35\frac{1}{2}$. *Malton* for 5 Years are, Winter $23\frac{1}{2}$, Spring $33\frac{1}{2}$, Summer $46\frac{1}{2}$, Harvest $45\frac{1}{2}$. *Plymouth* for 11 Years, Winter $96\frac{1}{2}$, Spring 84, Summer $66\frac{1}{2}$, Harvest $92\frac{1}{2}$ - - - - Or take we the Rains monthly, beginning with *January*, the *Townley* monthly Rains are near as follow, *Jan.* 70 Inches, *Febr.* 71, *March* 62, *April* 63, *May* 56, *June* 74, *July* 68, *Aug.* 98, *Sept.* 88, *Oct.* 97, *Nov.* 96, *Dec.* 81. The Medium of the monthly Rains for 11 Years at *Plymouth*, and 5 at *Malton*, are nearly *Jan.* 36, *Febr.* 43, *March* 38, *Apr.* 36, *May* $31\frac{1}{2}$, *June* 37, *July* $44\frac{1}{2}$, *Aug.* $40\frac{1}{2}$, *Sept.* 45, *Oct.* 53, *Nov.* 36, *Dec.* 46. The monthly Totals for 15 Years of *Southwick*, 7 Years of *London*, 5 of *Kent*, 17 of *Essex*, and 6 of *Darlington*, all collected together, are *Jan.* $88\frac{1}{2}$, *Feb.* $84\frac{1}{2}$, *March* 94, *Apr.* $81\frac{1}{2}$, *May* $109\frac{1}{2}$, *June* 120, *July* $133\frac{1}{2}$, *Aug.* $127\frac{1}{2}$, *Sept.* 126, *Oct.* $121\frac{1}{2}$, *Nov.* $94\frac{1}{2}$, *Dec.* 117. From which it is obvious, that neither of the Equinoxes are the rainiest Months, as has been said and believed, nor are the Solstices; but taking the whole together, *June*, *July*, *Aug.* and *Oct.* in general are the wettest. In *Lancashire*, *March* and *April* are driest, because in these Months the E. N. E. and S. E. Winds are pretty much stirring there, which

carry least Rain into these Parts; nor is *March* very wet at *Plymouth* and *Malton*.

7. Very rainy Summers, but especially Harvests, precede and portend a very hard Winter to follow. In *Nov. Oct.* and *Dec.* 1682, fell 15 Inches of Rain; 83 and 84 were the great Frost; 1706 was a very rainy Year, and 1707 little better; Corn dear; very cold. *Jan.* 25, 1708, began, and fell for several Days together in *Scotland*, a very great Snow, with a Frost, which continued till far in *April*, with greater Severity and longer Duration than the general Frost of 1709. The following Summer there was pretty dry till *Aug.* then abundance of Rain preceded the great Frost, which though severe, was not of long Continuance. From *June* to *Dec.* 1715, was a very rainy Time; then followed the great Frost of 1716. 1728 was a general rainy Year, and was succeeded by a Frost in *Germany* equal to that of 1709. 1739 was a very rainy Year; and on *Dec.* 28. began the severe Frost of 40, which far exceeded any Frost that had been felt in *England* for some Centuries.

8. Different Places have their rainy Months at various Seasons. At *Townley* the Rains of the last 5 Months of the Year is to that of the first 5, as 46 to 31. At *Upminster*, *Aug.* *Sept.* *Oct.* and *Nov.* are to *Feb.* *March*, *April* and *May*, near as 91 to 61. *Nov.* generally the rainiest, and *Febr.* the fairest; the Rain of the former to that of the latter as 27 to 12. At *London*, *June* and *Dec.* seem to these of *Jan.* and *Nov.* as 30 to 14. At *Southwick*, these of
July,

July, Aug. Sept. and Dec. being near alike, are to the Rains of *Jan. Febr. and March*, as 76 to 41. The *Oct. Dec. and Febr.* Rains at *Plymouth*, are to these of *April, May, and June*, as 131 to 64 $\frac{1}{2}$. *Darlington* rainiest Months are *July, Aug. and Sept.* the driest are *Nov. Dec. and Jan.* The Case is near the like at *Malton*.

9. Here we see what Situations require the least Quantities of Rain, and which the greatest; for what only fertilizes one Soil, would drown another, and render it barren: For a level champain Country requires not near so much as lofty Mountains; nor a thick, stiff, clayie Ground so much as a light running Sand; nor a thick deep Mould so much as Lime-stone just at the Grass-roots. Here are Instances of Wisdom in the Creation, and of Providence in governing the World, that the high steep Mountains, whose Caverns often contain necessary Minerals and Metals, their sloping Surfaces which afford large Pastures, and their Foot which supply us with Variety of fine Springs and the Origin of great Rivers, as they want often and most watering, so it is provided for, and sent them; whilst the Plains from whose Surfaces Water runs not so speedily off, and have not such plentiful Springs to supply, have less Rain. - - - As there is this Variety of Soils which stand in need of different Quantities of Rain, so all Soils are rarely deficient in their Product of Corn and Grass at once; but different Soils have them in their Turns, that so Commerce, Sociability, and Humanity should be preserved among Men. - - - And as
Rains

Rains are necessary for watering the Earth, so with us is Snow and Frost, at proper Seasons, for fertilizing it. - - - And as seasonable moderate Rains and Warmth tend to make the Earth fruitful, so barren Years are necessary for the Ground to recover itself, after it has spent its vegetative Principles by over-bearing. Hence the *Jewish* Sabbatical Year was greatly to the Advantage of their Land, and enriching it for the next six Years.

10. The different Quantities of Rain necessary to fertilize several Places, shew what Quantity is proper for, and adapted to each Soil and Situation, and how (when it may be done) they may be improved either by draining or watering; to lay on, or let off the Water from clayie, marshy, low, or other Ground, or let in on sandy dry Earth; or otherwise to provide against Drought or great Rains.

11. Here we see a Variety of Seasons in our Island, and in very contrary Times, by the timely Intervention of Showers in dry Springs, and of Heat and Sunshine before and during Harvest. After cold and wet Summers, we have commonly near the like Quantities of Grass and Corn, even in a Succession of Years, in some of which we have far greater Rains than in others.

12. The same Year may be both droughty and rainy, as 1679, wherein from *Aug.* to *Feb.* fell about 31 Inches in 6 Months; 1681, w from *Aug.* 1. to *March* 1. fell $27\frac{1}{2}$; and 1 when from *June* 1. to the End of *Dec.* fell 31 Inches. All 1683 was dry, only *June*,

and *Aug.* In 1693 *April*, and the three Harvest Months, which poured down near 30 Inches; and a parching Drought from *Dec.* 1739 to the Middle of *Aug.* then scarce any thing but Rain and Frost till the Year was out. There are several other Instances in the Table, of one Part of the Year dry, and another wet; as the Year 1747, from *Oct.* 46. to the End of *March* 47 was a most melancholy uncomfortable Winter, all cloudy, misty, missing, and rainy, only 7 Nights Frost. From *March* to the End of *Nov.* very little Rain, (except what fell in *June*, most of which was very cold;) the other six Months (especially *Aug.*) were uncommonly hot and dry; so as that Springs failed, and most Grass over at *Michaelmas*.

13. Some Years are very similar in having their Rains much alike, both for Time and Quantity; others as dissimilar. Sometimes long and great Rains are succeeded by Hurricanes.

14. As to the Causes of Rain; Rain is only a Cloud, and a Cloud is Vapours, or Water raised from the Land and Sea poured down again upon us. These Vapours are only small Bubbles or Bladders raised from the Waters, by the Sun's Force and subterranean Heat. These Bubbles being lighter than the Atmosphere, are buoyed up thereby, till they ascend so high as to be at a just Balance, or equal Weight with the Air they float in, till by some Perturbation of the Air, or soft Wind, they are brought nearer together, and form Clouds; where they are formed into Rain, Snow, Hail, Mist, &c. Some impute the Conversion of Clouds into
Rain,

Rain, to the Cold which continually occupies the upper Regions of the Air, chills and condenses the Bubbles when they arrive from a warmer at a colder Quarter, where it causes a Collection of several of them into small Masses; whereby their Quantity of Matter increasing in a greater Proportion to their Surfaces, they become too heavy for the light Air, and then fall down in Drops. Others will have it, that the Bubbles being full of Air, when they come into a colder Air than what they contain, their Air is confined to less Space, whereby the watery Shell becomes thicker, and so is heavier than the Air. Others will have the Wind to have a Share in the Action with the Cold; as we see a Wind blowing against a Cloud (as in Thunder-Showers) will drive its Bubbles upon one another; by which several of them being united, their Bulk and Weight brings them down. But this is more visible when two opposite Winds meet in the same Place. Clouds also already formed, being increased by fresh Additions of Vapours constantly rising, grow heavier, and are fitted to descend. - - - - But *Robault* says, the Heat of the Air, continuing some Time near the Earth, is at last elevated very high by a Wind; and there thawing the snowy *Villi*, or half-frozen Bubbles, reduces them to Drops; several of which uniting, descend, and have their Dissolution perfected as they fall down thro' the lower and warmer Regions of the Air. - - - - Dr. *Clark* imputes the Descent of the Clouds rather to a Diminution of the Air's Spring and Force, than to any

any Alteration of the Bubbles; which Spring of the Air depends chiefly on the weakening of the dry earthy Exhalations, so that the Air sinks under its Load, and the Clouds fall. - - - Now by which soever it is of those Means that the Bubbles are on the Descent, they will continue falling, notwithstanding the Resistance they every Moment meet with in their passing through an increasing Thickness and Weight of Air; for the lower they fall, they more of them will unite; and the more of them unite, the more Matter will be under the same Surface, every Moment enlarging: Hence the less Resistance to their Descent. - - - *Niewentyt* rejecting the above Cause of the Ascent of Vapours, says, that Particles of Fire separated from the Sun-Beams, by adhering to Particles of Water, make up small Bodies, specifically lighter than Air; which therefore, by hydrostatical Laws, must rise, and form Clouds that remain suspended, when they are risen up to such an Height, that the Air about them is of the same specific Gravity with themselves. And Rain is produced by the Separation of the Particles of Fire from those of Water; which last being hereby restored to their former specific Gravity, can no longer be supported in the Air, but fall down in Drops. This ingenious Hypothesis Dr. *Desaguliers* very clearly refutes, for several Reasons; as also the Vapours rising in imaginary Bubbles as above, and places the Cause of the Ascent; and says, that the Particles of Water, turned into Steam or Vapour by the Heat of the Sun (by a centrifugal Force) repel

repel each other strongly, and repel Air more than they repel each other; Aggregates of such Particles made of Vapour and Vacuity, may rise in Air of different Densities, according to their Density dependent on their Degree of Heat: And this he attempts to prove.

15. As to the different Sizes of the falling Drops. It's said, if the Wind act early enough to precipitate the Bubbles, before they reach to any great Height, their Coalitions being few and small in so short a Descent, the Drop will be small, and so form only a Dew. If the Vapours are great and many, and so rise a little higher, they form Mist or Fog. But if they ascend still a little higher, they form mistling, drizzling, or small Rain. If they meet with neither Cold nor Wind enough to condense or dissipate them, they produce a heavy, thick, dark Sky, sometimes of long Continuance. From hence they pretend to solve several Phenomena of the Weather, as why a cold is always a wet Summer, and a warm a dry one; for, say they, the Principle of Precipitation is had in the one, and not in the other: And why there are most Rains about the Equinoxes; for the Vapours arise more plentifully than ordinary in the Spring, as the Earth is loosened from its Winter Constipation; and because as the Sun recedes from us in Harvest, the Cold encreasing, the Vapours that had lingered above during the Summer's Heats, do now fall down: Why a settled, close, thick Sky rarely rains till it have been first clear; for the equally diffused Vapours must first be condensed and congregated into separate Clouds, to

Foundation of Rain, whereby the rest of the Sky is opened and clear to the Sun's Beams. A Shower is only a low Cloud dissolved into Rain, and poured down on a certain Tract of Land; and the Continuance of the Shower, and Extent of the Ground it waters, is in Proportion to the Quantity of Water it contains, its Largeness, and the Velocity of the Wind that drives it. Snow is only Vapour raised to the middle Region of the Air, and there congealed and frozen, its specific Gravity increased, and then let fall on the Earth in icy Flakes of sexangular Points. - - - *Seneca* and *Robault's* Account of Thunder, from an upper Cloud falling suddenly upon a lower, and the included Air finding a Vent in the Explosion we hear, agrees neither with the Effects nor Concomitants of Thunder; therefore we must refer it to *Sir Isaac Newton's* sulphureous Exhalations always rising up into the Air, when the Earth is dry; where meeting with Nitre, by Fermentation, or otherwise, they take Fire: Hence Lightning as well as Thunder; the Composition, Explosion, and Effects of Gunpowder; the plentiful Exhalation of Sulphur and Salts from the Earth; the sultry Warmth of the Air before Thunder, and the choaking sulphureous Smell that fills the Atmosphere after it, do all confirm this Theory. The Distance of the Thunder from us is easily computed from the Space between the Flash of Lightning and the Clap, allowing 1142 Feet (with *Dr. Wallis*) for every Second of Time, or near a Minute for a Mile.

16. That the greatest Rains do commonly fall upon the Equinoxes, is shewn above to be false, from Fact of the Vernal Equinox; its also evident it cannot be so, because if Heat cause the Ascent of Vapours, then the least Heat cannot elevate the greatest Plenty of Vapours: But Sir *Isaac Newton* has shewed, that the Heat of Summer is as 5, that of the Spring or Harvest as 3, and of Winter as 2; now its impossible that suppose the Spring Heat was $3\frac{1}{2}$, it should be capable of raising as much Vapour as 5, especially as it immediately preceeds the coldest Time of the Year, whose Heat is only 2. This again gives us the Reason why our Winter Rains (if not prevented Frost) must commonly be oftener, and in less Drops in Winter than Summer, for the Heat 2 can only raise Vapours (except in a clear Sunshine Day) $\frac{1}{2}$, or at most $\frac{1}{4}$ of a Mile; but the Heat 3 can raise $3\frac{1}{2}$ Miles, and the Heat 5, $5\frac{1}{2}$ Miles. This also indicates the Cause why so much of our Winter fresh Weather is hazy, foggy and misty; for during the Obliquity and Distance of the Sun from the Atmosphere, at and near the Earth's Surface is cold, and prevents the Ascent of the Vapours to any great Height, hence they sail along the Earth or near it; and since the Heat 5 of Summer can raise the Vapours $5\frac{1}{2}$ Miles high, then the Vapours rising high, and long sustained in the Air, much more of them is gathered and accumulated thence, till the Sun be past its Summer Solstice, and falling towards its Autumnal Equinox, when the Air gradually cools, the accu-

culated suspended Vapours fall lower, form Coalitions, and turn to Rain; hence more Rains fall in *July* and *Aug.* than before for ordinary.

17. From a diligent Examination of this Table of Rain, monthly and yearly, I do not find it can be known what Quantity will fall next Month or Year; and if any Certainty shall be discovered, it must be from a long Series of Observations in several Places of the Island in the same Years, since we find the Quantities differ widely at the Distance of a few Miles, according to the various Situations; and also to find whether the same Quantities of Rain in the like Number of Months and Years, or in different Numbers or Periods of Time. I have wholly omitted the *Edinburgh* Register, as it is for so few Years, which were not any of them remarkable for either Drought, Rain, Frost, Heat, Cold, or one general Epidemic, nor any other Journals published that were kept at the same Time.

18. As we find a Difference in the Quantities of Rain that fall in the several Places of this Island, so had we Opportunities to trace it, we should find the like, if not greater difference. In other Places, as at *Zurich* in *Switzerland*, the Medium of yearly Rain is $32\frac{1}{2}$ Inches, at *Pisa* in *Italy* $43\frac{1}{2}$, at *Paris* in *France* 19, at *Lisse* in *Flanders* 24, at *Charles-town* in *South-Carolina* 47; where from *May* to *Sept.* (but especially *Aug.*) are their rainiest; for in six Years, in these five Months, fell Yearly at a Medium 28 Inches, and in all the other seven, fell only 19 Inches. At *Delph* 26. 10,
at

at *Utrecht* 25, at *Rome* 34 Inches; in *New-England* near the same as in *Essex*, at *Naples* fell in 1727, $43\frac{1}{2}$ Inches, in 1728 only $19\frac{1}{2}$, at *Ostrogotba* in 1729 fell 21. 490, in 1730 only 18.360, at *Upsal* in 1729 fell $14\frac{1}{2}$ Inches, in 1730 a little more, viz. $14\frac{1}{2}$, at *Wittenberg* in 1729 fell $11\frac{1}{2}$, in 1730, 25: But the most exact and concise Account we have of the Weather from any Place is, that of the Marquis of *Poloni*, from *Padua*, for 12 Years, viz. from 1725 to 1737, whereof 12 Years Rains Quarterly is (according to the New Style) from *Decem.* 1, to *March* 1, is about 82 Inches; from that to *June* 1, 112; thence to *Sept.* 1, 93; then to *Dec.* 1, 115. He not only gives the Quantities of Rain, Monthly, Quarterly and Yearly, but the Number of rainy Days out of the eight Points of the Compass, and also how many snowy Days, with the Rise and Fall of the Barometer and Thermometer, &c.

19. Not only have several Countries, yea, different Places and Situations of the same Country, various Quantities of Rain, but in different Spaces of Time, according to the Heat of the Country and Season. The Marquis of *Poloni* thinks the Fall of three Inches in *June* 23, 1727, a Wonder, and says, never so much fell in one Day at *Paris*; but I have seen above twice that Quantity fall in *Lincolnshire*, and several of the Eastern Parts of *England* on *Sept.* 11, 12, 13, 14, 1741, but Instances are rare and seldom. Having Opportunity of a daily Journal of the W for 34 Years, i. e. from *Dec.* 24, 1;

Jan. 1, 1710; and from *April* 1, 1715, to *Jan.* 1, 1716, to *Jan.* 1748, all the rest of the Years beginning with *Jan.* (the first 16 Years of this Journal was kept eight Miles from hence, the Remainder here) and also free Access to the Parish (which is very large) Bills of Mortality, I compiled the following Table, wherein all above three or four Hours Rain at a Time, is accounted a rainy Day or Night, and one Shower constitutes a Day in it showry, and a Dozen does no more. The same Day is often one Part rainy and the other showry; in that Case it is put with the rainy only. In the first 16 Years several dropping or dewy Days are omitted, as not worth notice, but taken in in the other Years, which makes them appear more rainy than the rest. The Difficulty of ascertaining the just Time of the Winds to each Point, arises from their frequent Calms, often Changes, and many sudden Jerks and Shifts, and sometimes contrary Currents, &c. As to the Death of the Inhabitants, it being the Custom to keep the Corps two Nights, so for some that's kept longer, as many others are buried sooner, which brings it to a Parr. In the Table, the Figures in Column 1st shew the Number of fair Days that Month; Column 2d, the Number of rainy, showry or snowy Days that Month. Then follow eight Spaces, within Lines each, according to the eight chief Points of the Compass, and each Space contains three Columns; in Space 1st, Column 1st, how many Days the Wind was N. W. that Month; in Column 2d, how many

of those Days were rainy or showry ; where observe, it is not necessary that the Number in the 2d Column should not come up to, or even exceed the Number in Column 1st, for a half, third or quarter Days, the Wind may come from the same Point, and all be showry or rainy, and yet make but up one full Day. Column 3d, the Number that died when the Wind was in that Quarter, the same in the other Spaces. Space 2d, how many Days the Wind was N. E. &c. Space 3d, how long the Wind was N. &c. Space 4th, how many Days W. &c. Space 5th, the Number of Days it was S. &c. Space 6th, the Days it was E. &c. Space 7th, the Days it was S. W. &c. Space 8th, how long it was S. E. The last Column gives the Number that died monthly in the Parish : Behind the monthly Total of the Dead, is added in the last 13 Years, the highest and lowest Stations of the Barometer ; the Diameter of its Tube (which is perpendicular) is $\frac{1}{8}$ of an Inch ; its Range is divided into 36 equal Parts, which contain $2\frac{1}{2}$ Inches. The 6th of the 36th Part is opposite to $27\frac{3}{4}$ Inches of the Tube, and 31 opposite to $30\frac{1}{4}$ Inches. Some half and quarter Days are marked in the monthly Winds, which for want of Room are omitted in the annual Totals. In the Line below the yearly Totals, Column 1st, gives the Number of rainy Days that Year ; Column 2d, how many People died on these Day. Column 3d, how many Days were show besides the rainy Days ; Column 4th, the Number that died on those Days ; Column

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Number of drifling Days; Column 6th, how many died; Column 7th, on how many Days Thunder was heard there; Column 8th, how many died there; Column 9th, the Number of Days on which it snowed; Column 10th, how many died.



Table

1722.

| N.W. | N.E. | N. | W. | S. | E. | S.W. | S.E. |
|-----------|---------|-----|-----|-------|-----|------|------|
| 24 7.1 | 3 12 3 | 4.5 | 1 5 | 1 4 | 5 | 8 | 38 |
| 25 13 1 | 1 11.5 | 1.5 | 6 | 4 | 6 | 2 6 | 24 |
| 27 4 2 | 16 1.5 | 4 | 1 5 | 1 4 | 1 1 | 11.5 | 39 |
| 28 6 10 | 15 7 | 2 6 | 1 1 | 2 3.5 | 1 1 | 4 | 28 |
| 29 17 7.5 | 3 7 2 | 1 1 | 1 2 | 2 1 | 0 | 17.5 | 23 |
| 30 17 2 | 5 5 2.5 | 1 1 | 1 1 | 1 1 | 1 1 | 6 | 13 |
| | 1 1 1 | 1 1 | 1 1 | 1 1 | 1 1 | 10 | 24 |
| | 1 1 1 | 1 1 | 1 1 | 1 1 | 1 1 | 4 | 21 |
| | 1 1 1 | 1 1 | 1 1 | 1 1 | 1 1 | 1 | 26 |
| | 1 1 1 | 1 1 | 1 1 | 1 1 | 1 1 | 1 | 19 |
| | 1 1 1 | 1 1 | 1 1 | 1 1 | 1 1 | 1 | 19 |
| | 1 1 1 | 1 1 | 1 1 | 1 1 | 1 1 | 1 | 23 |
| | 1 1 1 | 1 1 | 1 1 | 1 1 | 1 1 | 1 | 5 |
| | 1 1 1 | 1 1 | 1 1 | 1 1 | 1 1 | 1 | 9 |
| | 1 1 1 | 1 1 | 1 1 | 1 1 | 1 1 | 1 | 29 |
| | 1 1 1 | 1 1 | 1 1 | 1 1 | 1 1 | 1 | 2 |

1723.

| N.W. | N.E. | N. | W. | S. | E. | S.W. | S.E. |
|------------|-----------|---------|----------|--------|----|----------|------|
| 17 11 6 | 4 5.5 | 2 4 | 4 5 | 2 1 | 1 | 15.5 | 31 |
| 18 14 5 | 1 10 3 | 1 2.5 | 1 16 | 4 1 | 1 | 16.5 | 48 |
| 19 5 5.5 | 5 1 1 | 1 1.5 | 1 1 | 1 1 | 1 | 2 4 | 85 |
| 20 4 5 | 7 16.5 | 1 6 | 1 1 | 1 1 | 1 | 14 | 97 |
| 21 16 | 4 19 2 | 1 10 2 | 1 1 | 1 1 | 1 | 1 5 | 98 |
| 22 11 7 | 1 11 6 | 1 3 | 1 1 | 1 1 | 1 | 7 | 52 |
| 23 10.5 | 1 9 1 | 1 1.5 | 1 1 | 1 1 | 1 | 3 6 | 46 |
| 24 16 | 1 14 3 | 1 4 | 1 1 | 1 1 | 1 | 1 1 | 34 |
| 25 9 5 | 1 3 5 | 1 1 | 1 1 | 1 1 | 1 | 1 1 | 27 |
| 26 105 116 | 19 135 42 | 6 93 22 | 12 63 33 | 7 24 3 | 1 | 13.5 | 25 |
| 27 26 70 | 127 12 16 | 5 7 0 | 12 63 33 | 7 24 3 | 1 | 12 | 34 |
| | | | | | | 8 116 47 | 24 |
| | | | | | | 199 16 | 603 |

| | NW. | NE. | N. | E. | 1724. | W. | SW. | SE. | 1725. |
|----|-----|-----|----|----|-------|----|-----|-----|-------|
| 19 | 13 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 20 | 14 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 21 | 15 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 22 | 16 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 23 | 17 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 24 | 18 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 25 | 19 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 26 | 20 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 27 | 21 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 28 | 22 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 29 | 23 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 30 | 24 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 31 | 25 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 32 | 26 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 33 | 27 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 34 | 28 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 35 | 29 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 36 | 30 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 37 | 31 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 38 | 32 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 39 | 33 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 40 | 34 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 41 | 35 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 42 | 36 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 43 | 37 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 44 | 38 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 45 | 39 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 46 | 40 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 47 | 41 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 48 | 42 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 49 | 43 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 50 | 44 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 51 | 45 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 52 | 46 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 53 | 47 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 54 | 48 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 55 | 49 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 56 | 50 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 57 | 51 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 58 | 52 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 59 | 53 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 60 | 54 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 61 | 55 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 62 | 56 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 63 | 57 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 64 | 58 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 65 | 59 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 66 | 60 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 67 | 61 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 68 | 62 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 69 | 63 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 70 | 64 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 71 | 65 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 72 | 66 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 73 | 67 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 74 | 68 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 75 | 69 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 76 | 70 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 77 | 71 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

| | N.W. | N.E. | N. | W. | 1725. | S. | E. | S.W. | S.E. |
|-----|------|------|----|----|-------|----|----|------|------|
| 16 | 5 | 6 | 3 | 1 | 4 | 1 | 1 | 4 | 1 |
| 25 | 7 | 2 | 13 | 6 | 6 | 1 | 1 | 14 | 1 |
| 24 | 10 | 5 | 4 | 1 | 1 | | | 9 | 2 |
| 13 | 9 | 9 | 1 | 1 | 3 | 3 | 7 | 1 | 2 |
| 17 | 6 | 4 | 2 | 1 | 1 | | | 14 | 3 |
| 14 | 7 | 3 | 16 | 3 | 1 | | | 15 | 1 |
| 16 | 11 | 3 | 6 | 2 | 1 | | | 15 | 1 |
| 10 | 8 | 6 | 1 | 1 | 1 | | | 15 | 1 |
| 16 | 12 | 6 | 4 | 1 | 1 | | | 15 | 1 |
| 15 | 7 | 7 | 6 | 2 | 1 | | | 15 | 1 |
| 20 | 6 | 1 | 1 | 1 | 1 | | | 15 | 1 |
| 20 | 2 | 2 | 3 | 1 | 1 | | | 15 | 1 |
| 21 | 2 | 3 | 3 | 1 | 1 | | | 15 | 1 |
| 25 | 13 | 1 | 1 | 1 | 1 | | | 15 | 1 |
| 21 | 19 | 1 | 3 | 1 | 1 | | | 15 | 1 |
| 21 | 10 | 1 | 3 | 1 | 1 | | | 15 | 1 |
| 37 | 102 | 36 | 83 | 14 | 13 | | | 15 | 1 |
| 137 | 128 | 76 | 17 | 20 | 13 | | | 15 | 1 |
| 25 | 20 | 89 | 2 | 5 | 13 | | | 15 | 1 |
| | | | 6 | | 18 | | | 15 | 1 |
| | | | 3 | | | | | 15 | 1 |

| 1726. | W. | N. | N.E. | N.W. | S. | E. | S.W. | S.E. |
|-------|----|-----|------|------|----|----|------|------|
| 17 | 14 | 13 | 3 | 5 | 1 | 1 | 3 | 1 |
| 20 | 8 | 2 | 3 | 3 | | | 4 | 2 |
| 23 | 13 | 1 | 1 | 2 | | | 10 | 28 |
| 24 | 10 | 3 | 1 | 1 | | | 15 | 30 |
| 25 | 9 | 1.5 | 1 | 1.5 | | | 13 | 31 |
| 26 | 9 | 1.5 | 1 | 1 | | | 13 | 33 |
| 27 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 28 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 29 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 30 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 31 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 32 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 33 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 34 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 35 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 36 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 37 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 38 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 39 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 40 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 41 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 42 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 43 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 44 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 45 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 46 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 47 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 48 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 49 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 50 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 51 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 52 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 53 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 54 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 55 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 56 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 57 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 58 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 59 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 60 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 61 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 62 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 63 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 64 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 65 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 66 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 67 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 68 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 69 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 70 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 71 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 72 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 73 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 74 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 75 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 76 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 77 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 78 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 79 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 80 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 81 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 82 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 83 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 84 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 85 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 86 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 87 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 88 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 89 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 90 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 91 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 92 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 93 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 94 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 95 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 96 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 97 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 98 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 99 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 100 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 101 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 102 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 103 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 104 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 105 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 106 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 107 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 108 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 109 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 110 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 111 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 112 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 113 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 114 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 115 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 116 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 117 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 118 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 119 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 120 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 121 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 122 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 123 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 124 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 125 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 126 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 127 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 128 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 129 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 130 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 131 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 132 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 133 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 134 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 135 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 136 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 137 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 138 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 139 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 140 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 141 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 142 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 143 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 144 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 145 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 146 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 147 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 148 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 149 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 150 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 151 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 152 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 153 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 154 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 155 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 156 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 157 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 158 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 159 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 160 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 161 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 162 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 163 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 164 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 165 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 166 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 167 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 168 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 169 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 170 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 171 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 172 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 173 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 174 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 175 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 176 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 177 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 178 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 179 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 180 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 181 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 182 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 183 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 184 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 185 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 186 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 187 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 188 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 189 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 190 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 191 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 192 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 193 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 194 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 195 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 196 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 197 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 198 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 199 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 200 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 201 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 202 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 203 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 204 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 205 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 206 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 207 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 208 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 209 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 210 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 211 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 212 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 213 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 214 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 215 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 216 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 217 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 218 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 219 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 220 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 221 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 222 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 223 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 224 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 225 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 226 | 9 | 1.5 | 1 | 1 | | | 13 | 30 |
| 227 | 9 | 1.5 | 1 | 1 | | | | |

[illegible]

1720.

| N.W. | N.E. | N. | W. | S. | E. | S.W. | S.E. |
|------------|----------|-----|----------|-------|----|------|--------|
| 22 9 10 | 1 4 | 1 | 1 16.5 | 1 | 1 | 10 | 1 |
| 20 9 6.5 | 1 3 | 1.5 | 1 4 | 1 | 1 | 7 | 1 |
| 21 8 20 | 1 4.5 | 1 | 1 1.5 | 1 | 1 | 1.5 | 1 |
| 21 8 3 | 1 4 | 1 | 1 1.5 | 1 | 1 | 6.5 | 1 |
| 17 14 2.5 | 1 6 | 1 | 1 1.5 | 1 | 1 | 4.5 | 1 |
| 21 9 5 | 1 2 | 1 | 1 1.5 | 1 | 1 | 9.5 | 1 |
| 23 8 7.5 | 1 2 | 1 | 1 1.5 | 1 | 1 | 10.5 | 1 |
| 22 9 7.5 | 1 2 | 1 | 1 1.5 | 1 | 1 | 11 | 1 |
| 23 16 8 | 1 2 | 1 | 1 1.5 | 1 | 1 | 9 | 1 |
| 20 10 6.5 | 1 2 | 1 | 1 1.5 | 1 | 1 | 10 | 1 |
| 15 16 1 | 1 2 | 1 | 1 1.5 | 1 | 1 | 12 | 1 |
| 243 153 77 | 18 31 22 | 4 | 11 56 | 14 20 | 1 | 14.5 | 16 |
| 34 10 57 | 8 2 13 | 5 | 12 39 24 | 1 | 1 | 38 | 22 268 |

1721.

| N.W. | N.E. | N. | W. | S. | E. | S.W. | S.E. |
|------------|----------|----|---------|----------|----|------|--------|
| 23 8 15.5 | 3 22 | 1 | 1 4.5 | 1 | 1 | 7.5 | 1 |
| 23 3 2 | 1 1 | 1 | 1 2 | 1 | 1 | 1 | 1 |
| 24 10 3 | 1 1 | 1 | 1 4 | 1 | 1 | 9 | 1 |
| 20 11 6 | 1 2 | 1 | 1 2.5 | 1 | 1 | 9 | 1 |
| 18 12 7 | 1 1 | 1 | 1 2.5 | 1 | 1 | 4 | 1 |
| 18 13 6 | 1 1 | 1 | 1 2.5 | 1 | 1 | 10 | 1 |
| 18 13 6 | 1 1 | 1 | 1 2.5 | 1 | 1 | 12 | 1 |
| 24 7 12 | 1 1 | 1 | 1 2.5 | 1 | 1 | 5.5 | 1 |
| 24 7 12 | 1 1 | 1 | 1 2.5 | 1 | 1 | 7 | 1 |
| 26 14 5.5 | 1 1 | 1 | 1 2.5 | 1 | 1 | 7.5 | 1 |
| 26 5 11 | 1 1 | 1 | 1 2.5 | 1 | 1 | 13.5 | 1 |
| 256 109 88 | 17 67 35 | 5 | 29 3.5 | 15 29 10 | 6 | 92 | 10 |
| 26 25 70 | 7 | 6 | 8 20 32 | 1 | 1 | 34 | 25 315 |

1730.

| N.W. | N.E. | N. | W. | E. | S.W. | S.E. |
|------------|-----------|---------|---------|-------|--------|----------|
| 22 9.11 | 17 3 | 6 4 | 2 1 | 1 1 | 6 12 | 5 47 |
| 10 18.10 | 14 4 | 7 8 | 4 1 | 3 3 | 6 13 | 37 1 |
| 17 14 3 | 3 2 | 5 5 | 12 6 | 1 9 | 7 14 | 1 50 |
| 20 10 7.5 | 6 3 | 4 3 | 3.5 | 2 6 | 8 15 | 1 39 |
| 23 18 3 | 3 3 | 2 5 | 4 3 | 1 3 | 10 16 | 5 25 |
| 28 12 6 | 3 7 | 9 3 | 1 1 | 3 6 | 11 17 | 5 27 |
| 12 19 17.5 | 2 2 | 3 3 | 1 1 | 7 7 | 5.5 18 | 1 34 |
| 22 9 3 | 2 6 | 7 6 | 1 1 | 1 1 | 17 19 | 1 24 |
| 23 7 4 | 3 6 | 4 3 | 1 1 | 1 1 | 6 12 | 5 29 |
| 16 15 1.5 | 2 11 | 14 1 | 1 1 | 2 1.5 | 13 13 | 2 27 |
| 19 11 12 | 7 7 | 14 4 | 1 1 | 4 4 | 5 10 | 2 24 |
| 23 8 11.5 | 4 13 | 9 3 | 1 1 | 3 3 | 6 12 | 1 40 |
| 215 150 90 | 33 105 49 | 8 36 16 | 6 13 26 | 14 35 | 119 64 | 7 21 403 |
| 16 18 111 | 110 18 19 | 3 6 3 | 14 35 | 14 35 | 117 33 | |

1731.

| N.W. | N.E. | N. | W. | E. | S.W. | S.E. |
|------------|----------|----------|---------|--------|----------|-----------|
| 3 17 7 | 3 3 | 5 5 | 5 5 | 1 1 | 1 2 | 1 57 |
| 1 3 7.5 | 2 8 | 2.5 2.5 | 1 1 | 3 1 | 7 13 | 1 32 |
| 1 11 9 | 10 24 | 4 4 | 3 3 | 1 1 | 3 3 | 1 22 |
| 1 5 19 | 2 5 | 3 3 | 2 2 | 1 1 | 3 3 | 3 38 |
| 1 5 8.5 | 2 4 | 2.5 2.5 | 1 1 | 1 1 | 4 4 | 9 23 |
| 1 9 8.5 | 2 4 | 3 3 | 1 1 | 1 1 | 5 5 | 1 20 |
| 4 3 | 6 12 | 5 5 | 1 1 | 1 1 | 6 6 | 2 17 |
| 1 17 | 1 17 | 3 3 | 1 1 | 1 1 | 4 4 | 1 19 |
| 1 3 3.5 | 1 1 | 3 3 | 1 1 | 2 2 | 13 13 | 5 21 |
| 1 1 6 | 3 3 | 3 3 | 1 1 | 4 4 | 9 9 | 5 29 |
| 1 4 1 | 2 2 | 3 3 | 1 1 | 1 1 | 7 7 | 1 16 |
| 1 1 | 1 1 | 1 1 | 1 1 | 1 1 | 3 3 | 1 18 |
| 238 127 70 | 32 74 27 | 11 39 35 | 4 15 16 | 7 12 5 | 71 34 | 10 33 303 |
| 21 16 76 | 4 0 | 12 12 | 12 12 | 12 12 | 42 71 34 | |

1732.

| N.W. | N.E. | N. | W. | E. | S.W. | S.E. |
|------|------|----|----|----|------|------|
| 22 | 3 | 3 | 7 | 1 | 3 | 2 |
| 23 | 3 | 3 | 13 | 1 | 12 | 2 |
| 24 | 6 | 3 | 4 | 4 | 1 | 2 |
| 25 | 7 | 4 | 1 | 2 | 1 | 2 |
| 26 | 4 | 2 | 2 | 4 | 3 | 4 |
| 27 | 5 | 2 | 2 | 10 | 4 | 4 |
| 28 | 1 | 4 | 3 | 9 | 1 | 1 |
| 29 | 2 | 6 | 3 | 4 | 7 | 2 |
| 30 | 3 | 5 | 3 | 2 | 10 | 2 |
| 31 | 4 | 5 | 2 | 3 | 4 | 2 |
| 32 | 1 | 1 | 2 | 6 | 3 | 2 |
| 33 | 1 | 2 | 2 | 1 | 7 | 2 |
| 34 | 1 | 2 | 2 | 1 | 4 | 2 |
| 35 | 1 | 2 | 2 | 1 | 3 | 2 |
| 36 | 1 | 2 | 2 | 1 | 2 | 2 |
| 37 | 1 | 2 | 2 | 1 | 1 | 2 |
| 38 | 1 | 2 | 2 | 1 | 1 | 2 |
| 39 | 1 | 2 | 2 | 1 | 1 | 2 |
| 40 | 1 | 2 | 2 | 1 | 1 | 2 |
| 41 | 1 | 2 | 2 | 1 | 1 | 2 |
| 42 | 1 | 2 | 2 | 1 | 1 | 2 |
| 43 | 1 | 2 | 2 | 1 | 1 | 2 |
| 44 | 1 | 2 | 2 | 1 | 1 | 2 |
| 45 | 1 | 2 | 2 | 1 | 1 | 2 |
| 46 | 1 | 2 | 2 | 1 | 1 | 2 |
| 47 | 1 | 2 | 2 | 1 | 1 | 2 |
| 48 | 1 | 2 | 2 | 1 | 1 | 2 |
| 49 | 1 | 2 | 2 | 1 | 1 | 2 |

1733.

| N.W. | N.E. | N. | W. | E. | S.W. | S.E. |
|------|------|----|----|----|------|------|
| 24 | 7 | 3 | 2 | 7 | 12 | 40 |
| 25 | 19 | 3 | 5 | 12 | 13 | 70 |
| 26 | 13 | 5 | 3 | 9 | 6 | 4 |
| 27 | 17 | 2 | 4 | 2 | 6 | 51 |
| 28 | 6 | 1 | 1 | 1 | 1 | 34 |
| 29 | 10 | 2 | 1 | 1 | 1 | 25 |
| 30 | 12 | 1 | 1 | 1 | 1 | 20 |
| 31 | 11 | 1 | 1 | 1 | 1 | 18 |
| 32 | 13 | 1 | 1 | 1 | 1 | 23 |
| 33 | 8 | 1 | 1 | 1 | 1 | 10 |
| 34 | 6 | 1 | 1 | 1 | 1 | 22 |
| 35 | 7 | 1 | 1 | 1 | 1 | 24 |
| 36 | 19 | 1 | 1 | 1 | 1 | 25 |
| 37 | 136 | 10 | 38 | 15 | 116 | 1038 |
| 38 | 44 | 58 | 31 | 19 | 49 | 1038 |
| 39 | 1 | 1 | 1 | 1 | 1 | 1 |

1734.

| | N.W. | N.E. | N. | W. | S. | E. | S.W. | S.E. | |
|----|------|------|----|-----|----|----|------|------|-----|
| 18 | 13 | 5 | 2 | 6 | 4 | 5 | 6 | 7 | 25 |
| 19 | 8 | 5 | 3 | 5 | 3 | 1 | 13 | 18 | 27 |
| 20 | 13 | 3 | 3 | 4 | 4 | 1 | 13 | 17 | 8 |
| 21 | 6 | 3 | 6 | 2.5 | 2 | 0 | 8 | 9 | 33 |
| 22 | 22 | 1 | 1 | 7 | 4 | 4 | 11 | 14 | 21 |
| 23 | 9 | 1 | 1 | 2 | 4 | 1 | 4 | 11 | 26 |
| 24 | 16 | 3 | 1 | 7 | 4 | 6 | 1 | 11 | 35 |
| 25 | 16 | 6 | 2 | 6 | 4 | 1 | 9 | 5 | 30 |
| 26 | 9 | 5 | 3 | 3 | 2 | 1 | 10 | 5 | 28 |
| 27 | 8 | 3 | 4 | 4 | 7 | 1 | 7 | 2 | 30 |
| 28 | 19 | 10 | 2 | 2 | 8 | 1 | 10 | 10 | 22 |
| 29 | 9 | 2 | 1 | 9 | 2 | 0 | 7 | 14 | 30 |
| 30 | 18 | 1 | 3 | 6 | 7 | 12 | 8 | 4 | 31 |
| 31 | 154 | 47 | 13 | 49 | 38 | 27 | 115 | 143 | 14 |
| 32 | 43 | 8 | 1 | 1 | 63 | 13 | 47 | 6 | 304 |

1735.

| | N.W. | N.E. | N. | W. | S. | E. | S.W. | S.E. | |
|----|------|------|----|-----|-----|-----|------|------|-----|
| 21 | 10 | 6 | 3 | 9 | 8 | 1 | 1 | 1 | 36 |
| 22 | 8 | 5 | 1 | 9.5 | 2 | 1 | 7 | 8 | 38 |
| 23 | 16 | 3 | 2 | 6 | 15 | 2 | 4 | 1 | 33 |
| 24 | 9 | 3 | 2 | 6 | 5 | 5 | 2 | 1 | 34 |
| 25 | 11 | 4.5 | 3 | 4 | 5.5 | 3 | 9 | 2 | 40 |
| 26 | 10 | 10 | 3 | 11 | 2.5 | 2.5 | 4 | 1 | 23 |
| 27 | 19 | 1.5 | 2 | 3 | 6 | 1.5 | 1 | 3 | 28 |
| 28 | 12 | 3 | 2 | 2 | 1 | 1 | 12 | 1 | 17 |
| 29 | 12 | 3 | 2 | 6 | 6 | 4 | 8.5 | 1 | 24 |
| 30 | 10 | 5 | 2 | 6 | 4.5 | 3 | 6 | 5 | 32 |
| 31 | 10 | 5 | 2 | 1.5 | 3 | 3.5 | 4 | 4 | 45 |
| 32 | 9 | 3.5 | 1 | 2 | 6 | 11 | 13 | 12 | 5 |
| 33 | 9 | 5 | 1 | 4 | 9 | 14 | 5 | 6 | 34 |
| 34 | 133 | 53 | 17 | 62 | 57 | 58 | 75 | 68 | 23 |
| 35 | 61 | 47 | 6 | 1 | 57 | 18 | 9 | 20 | 382 |

| 1732. | | | | | | | | | |
|-------|------|----|----|------|------|----|----|----|----|
| N.W. | N.E. | W. | E. | S.W. | S.E. | | | | |
| 3 | 3 | 7 | 10 | 3 | 10 | 3 | 10 | 3 | 10 |
| 6 | 3 | 13 | 10 | 12 | 10 | 12 | 10 | 12 | 10 |
| 5 | 4 | 1 | 7 | 1 | 7 | 1 | 7 | 1 | 7 |
| 1 | 2 | 3 | 2 | 3 | 2 | 3 | 2 | 3 | 2 |
| 2 | 1 | 4 | 6 | 4 | 6 | 4 | 6 | 4 | 6 |
| 3 | 1 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 4 | 2 | 6 | 4 | 6 | 4 | 6 | 4 | 6 | 4 |
| 5 | 3 | 7 | 3 | 7 | 3 | 7 | 3 | 7 | 3 |
| 6 | 4 | 8 | 2 | 8 | 2 | 8 | 2 | 8 | 2 |
| 7 | 5 | 9 | 1 | 9 | 1 | 9 | 1 | 9 | 1 |
| 8 | 6 | 10 | | 10 | | 10 | | 10 | |
| 9 | 7 | 11 | | 11 | | 11 | | 11 | |
| 10 | 8 | 12 | | 12 | | 12 | | 12 | |
| 11 | 9 | 13 | | 13 | | 13 | | 13 | |
| 12 | 10 | 14 | | 14 | | 14 | | 14 | |
| 13 | 11 | 15 | | 15 | | 15 | | 15 | |
| 14 | 12 | 16 | | 16 | | 16 | | 16 | |
| 15 | 13 | 17 | | 17 | | 17 | | 17 | |
| 16 | 14 | 18 | | 18 | | 18 | | 18 | |
| 17 | 15 | 19 | | 19 | | 19 | | 19 | |
| 18 | 16 | 20 | | 20 | | 20 | | 20 | |
| 19 | 17 | 21 | | 21 | | 21 | | 21 | |
| 20 | 18 | 22 | | 22 | | 22 | | 22 | |
| 21 | 19 | 23 | | 23 | | 23 | | 23 | |
| 22 | 20 | 24 | | 24 | | 24 | | 24 | |
| 23 | 21 | 25 | | 25 | | 25 | | 25 | |
| 24 | 22 | 26 | | 26 | | 26 | | 26 | |
| 25 | 23 | 27 | | 27 | | 27 | | 27 | |
| 26 | 24 | 28 | | 28 | | 28 | | 28 | |
| 27 | 25 | 29 | | 29 | | 29 | | 29 | |
| 28 | 26 | 30 | | 30 | | 30 | | 30 | |
| 29 | 27 | 31 | | 31 | | 31 | | 31 | |
| 30 | 28 | 32 | | 32 | | 32 | | 32 | |
| 31 | 29 | 33 | | 33 | | 33 | | 33 | |
| 32 | 30 | 34 | | 34 | | 34 | | 34 | |
| 33 | 31 | 35 | | 35 | | 35 | | 35 | |
| 34 | 32 | 36 | | 36 | | 36 | | 36 | |
| 35 | 33 | 37 | | 37 | | 37 | | 37 | |
| 36 | 34 | 38 | | 38 | | 38 | | 38 | |
| 37 | 35 | 39 | | 39 | | 39 | | 39 | |
| 38 | 36 | 40 | | 40 | | 40 | | 40 | |
| 39 | 37 | 41 | | 41 | | 41 | | 41 | |
| 40 | 38 | 42 | | 42 | | 42 | | 42 | |
| 41 | 39 | 43 | | 43 | | 43 | | 43 | |
| 42 | 40 | 44 | | 44 | | 44 | | 44 | |
| 43 | 41 | 45 | | 45 | | 45 | | 45 | |
| 44 | 42 | 46 | | 46 | | 46 | | 46 | |
| 45 | 43 | 47 | | 47 | | 47 | | 47 | |
| 46 | 44 | 48 | | 48 | | 48 | | 48 | |
| 47 | 45 | 49 | | 49 | | 49 | | 49 | |
| 48 | 46 | 50 | | 50 | | 50 | | 50 | |
| 49 | 47 | 51 | | 51 | | 51 | | 51 | |
| 50 | 48 | 52 | | 52 | | 52 | | 52 | |

[illegible]

1734.

| N.W. | N.E. | N. | W. | S. | E. | S.W. | S.E. |
|------|------|----|----|-----|-----|------|------|
| 18 | 12 | 5 | 2 | 6 | 2.5 | 3 | 5.5 |
| 20 | 18 | 5 | 1 | 5 | 1 | 1 | 1 |
| 18 | 13 | 3 | 1 | 4 | 1 | 1 | 1 |
| 24 | 22 | 3 | 1 | 2.5 | 2 | 1 | 1 |
| 9 | 22 | 1 | 1 | 2 | 1 | 1 | 1 |
| 16 | 14 | 3 | 1 | 7 | 1 | 1 | 1 |
| 15 | 16 | 6 | 1 | 6 | 1 | 1 | 1 |
| 22 | 9 | 5 | 1 | 3 | 1 | 1 | 1 |
| 22 | 8 | 3 | 1 | 4 | 1 | 1 | 1 |
| 12 | 19 | 10 | 1 | 8 | 1 | 1 | 1 |
| 21 | 9 | 2 | 1 | 2 | 1 | 1 | 1 |
| 13 | 18 | 1 | 1 | 3 | 1 | 1 | 1 |
| 211 | 154 | 47 | 19 | 58 | 34 | 9 | 43 |
| 21 | 43 | | | | | | |

1735.

| N.W. | N.E. | N. | W. | S. | E. | S.W. | S.E. |
|------|------|-----|----|-----|-----|------|------|
| 21 | 10 | 6 | 1 | 9 | 1 | 1 | 1 |
| 20 | 8 | 8 | 1 | 15 | 2 | 1 | 1 |
| 15 | 16 | 3 | 1 | 5 | 2 | 1 | 1 |
| 21 | 9 | 3 | 1 | 5.5 | 2 | 1 | 1 |
| 20 | 11 | 4.5 | 1 | 3 | 2.5 | 1 | 1 |
| 20 | 10 | 10 | 1 | 6 | 1 | 1 | 1 |
| 12 | 19 | 1.5 | 1 | 2 | 1.5 | 1 | 1 |
| 19 | 12 | 3 | 1 | 3 | 1 | 1 | 1 |
| 20 | 10 | 1 | 1 | 6 | 1 | 1 | 1 |
| 21 | 10 | 5 | 1 | 10 | 1 | 1 | 1 |
| 21 | 9 | 3.5 | 1 | 7 | 1 | 1 | 1 |
| 22 | 9 | 5 | 1 | 9 | 1 | 1 | 1 |
| 232 | 133 | 53 | 11 | 57 | 57 | 33 | 68 |
| 63 | 61 | 47 | 59 | 10 | 7 | 23 | 382 |

1736.

| N.W. | N.E. | N. | W. | E. | S.W. | S.E. |
|------------|-------------|----------|----------|-------|----------|---------------|
| 17 14 3 | 4 1 3 | 3 | 6 9 | 13 3 | 3 3 | 4 31 24.12 |
| 18 20 10 | 4 9 3 | 1 | 1 | 1 3 | 1 3 | 3 32 25.9 |
| 19 13 | 4 8 1 | 4 | 2 | 1 9 | 1 3 | 5 35 98 27.15 |
| 20 9 11 | 2 26 | 7 | 3 12 3 | 7 | 2 11 3 | 4 62 30.9 |
| 21 16 1.5 | 1 3 1 | 2 | 2 3 5 | 1 | 2 5 2 | 5 49 28.20 |
| 22 9 4 | 1 3 8 | 2 | 2 8 1.5 | 4 4 | 2 2 2 | 26 28.22 |
| 23 11 5 | 2 2 3 | 1 | 3 4 3 | 4 4 | 1 6 1 | 25 28.21 |
| 24 17 8 | 1 1 1 | 1 | 2 3 9 | 4 4 | 2 3 3 | 2 16 26.20 |
| 25 10 11.5 | 2 6 6 | 1 | 2 7 1 | 4 4 | 2 5 5 | 19 28.22 |
| 26 14 6 | 1 3 2 | 1 | 2 9 9 | 2 | 2 13 6 | 6 23 27.15 |
| 27 10 11.5 | 1 4 1 | 2 | 1 8 3 | 1 | 1 12 | 3 31 30.12 |
| 28 14 6 | 1 4 1 | 1 | 1 1 2 | 1 | 1 12 | 38 28.13 |
| 29 10 11.5 | 7 25 1 | — | — | — | — | — |
| 30 14 6 | 26 86 40 15 | 20 50 43 | 16 54 47 | 34 21 | 21 94 31 | 12 59 47 30.9 |
| 31 42 65 | 79 6 5 4 | 22 | — | — | — | — |

1737.

| N.W. | N.E. | N. | W. | E. | S.W. | S.E. |
|-----------|-----------|----------|----------|---------|----------|-------------|
| 17 16 | 4 17 | 7 | 23 4 3 | 13 3 | 3 13 | 53 31.8 |
| 18 17 5 | 5 4 | 6 6 | 4 11 4 | 9 5 | 4 17 | 31 27 9.5 |
| 19 12 3 | 1 10 8 | 1 3 | 5 2 | 10 5 | 2 4 | 4 38 28.14 |
| 20 7 4 | 2 4 5 | 4 16 3 | 3 3 | 4 3.5 | 7 11 4 | 33 29.18 |
| 21 7 7 | 4 5 | 1 10 2.5 | 5 3 | 3 5.5 | 1 4.5 | 4 37 30.19 |
| 22 9 4 | 2 4 5 | 4 9 | 4 10 | 13 1.5 | 10 1 | 2 43 28.19 |
| 23 17 8 | 5 14 1 | 3 12 | 2 18 3 | 1 4 | 2 5 | 31 25.15 |
| 24 11 1 | 1 1 2 | 2 6 | 2 7 5 | 1 6 | 2 4 | 45 25.16 |
| 25 11 1 | 1 1 2 | 9 19 2 | 3 2 | 1 6 | 1 12 3 | 32 27.14 |
| 26 15 6 | 4 15 1 | 1 7 | 3 4 1 | 3 5 | 6 21 2 | 2 41 28.13 |
| 27 12 5 | 1 14 | 3 6 | 2 2 | 10 9 | 2 2 8 | 3 48 32.15 |
| 28 140 68 | 37 303 32 | 19 67 63 | 16 87 25 | 6 42 74 | 27 94 32 | 12 40 30.18 |
| 29 43 6 | — | — | — | — | — | — |
| 30 43 6 | — | — | — | — | — | — |
| 31 43 6 | — | — | — | — | — | — |

1738.

| N.W. | N.E. | N. | W. | S. | E. | S.W. | S.E. |
|------------|----------|---------|---------|----------|----|-------------|---------------|
| 19 12 5 | 1 6 | 2 4 | 6 3 | 2 1 | 4 | 18 8 34 | 43 31.10 |
| 18 10 5 | 5 8 | 3 3 | 6 3 | 2 1 | 4 | 2 7 | 34 31.16 |
| 19 12 8 | 14 2 | 10 2 | 1 4 | 12 4 | 2 | 4 6 | 48 26.11 |
| 15 15 3 | 10 6 | 1 2 | 1 3 | 4 5 | 2 | 3 5 | 31 28.10 |
| 20 11 2 | 1 8 | 2 4 | 3 10 | 9 11 | 2 | 2 4 | 52 27.16 |
| 15 15 11 | 10 14 | 2 2 | 7 10 | 14 2 | 1 | 2 4 | 32 23.17 |
| 20 11 4 | 1 8 | 2 2 | 7 10 | 14 2 | 1 | 14 11 | 52 28.20 |
| 18 13 9 | 1 10 | 2 3 | 3 10 | 13 4 | 1 | 1 5 | 40 26.18 |
| 16 14 1 | 2 5 | 3 3 | 7 6 | 10 5 | 4 | 8 3 | 33 27.17 |
| 15 16 1 | 1 1 | 2 4 | 3 2 | 5 10 | 1 | 2 3 | 34 30.11 |
| 19 11 3 | 1 3 | 2 1 | 13 7 | 12 5 | 2 | 2 1 | 21 29.16 |
| 21 10 | — | 13 | — | 8 7 | — | — | 38 31.14 |
| 215 150.52 | 22 80.27 | 7 25.37 | 7 33.73 | 11 63.39 | 11 | 64 30 91.19 | 16 45.8 31.10 |
| 48 64.51 | 75 18.15 | 25 13 | — | 72.34 | — | — | — |

1739.

| N.W. | N.E. | N. | W. | S. | E. | S.W. | S.E. |
|------------|----------|----------|----------|----------|-----|---------|--------------|
| 16 15 5 | 4 9 | 2 10 | 2 8 | 4 5 | 2 | 10 4 15 | 27 26.9 |
| 14 18 7 | 9 6 | 10 6 | 11 11 | 3 3 | 1 | 9 2 11 | 38 27.18 |
| 13 15 7 | 6 6 | 8 3 | 6 4 | 3 3 | 3 | 1 6 | 39 28.13 |
| 21 10 5 | 2 2 | 4 1 | 3 3 | 3 6 | 2 | 4 4 | 30 23.15 |
| 13 17 3 | 2 2 | 4 4 | 6 9 | 3 3 | 1 | 5 4 | 33 29.16 |
| 22 9 7 | 6 3 | 4 3 | 11 5 | 2 2 | 2 | 12 5 | 17 28.19 |
| 17 14 2.5 | 5 6 | 2 1 | 3 3 | 3 8 | 1.5 | 5 4 | 33 28.22 |
| 7 23 4 | 3 3 | 4 13 | 7 3 | 5 5 | 2 | 1 2 | 26 29.20 |
| 18 13 2 | 1 5 | 10 4 | 13 2 | 5 1 | 4 | 9 8 | 26 27.19 |
| 17 13 3 | 1 1 | 4 10 | 13 2 | 5 1 | 1 | 2 1 | 18 32.22 |
| 17 14 | 1 1 | 4 4 | 8 3 | 5 2 | 7 | 3 1 | 30 30.8 |
| 290 175.43 | 18 52.26 | 21 57 | 53 64 | 11 4 | — | 10 8 | 26 31.21 |
| 55 52.52 | 50 19.16 | 13 12.16 | 25 54.60 | 33 46.21 | 11 | 60 28 | 37 34.9 32.8 |

1740.

| N.W. | N.E. | N. | W. | S. | E. | S.W. | S.E. |
|------|------|----|----|-----|----|------|------|
| 29 | 2 | 3 | 1 | 1.5 | 2 | 1.5 | 2.5 |
| 24 | 5 | 16 | 3 | 3 | 1 | 1 | 4 |
| 22 | 9 | 14 | 7 | 12 | 1 | 1 | 1 |
| 25 | 5 | 12 | 1 | 1.5 | 1 | 1 | 1 |
| 27 | 4 | 13 | 2 | 3 | 1 | 1 | 1 |
| 26 | 4 | 13 | 2 | 3 | 1 | 1 | 1 |
| 24 | 7 | 8 | 4 | 7 | 1 | 1 | 1 |
| 9 | 2 | 2 | 3 | 1 | 1 | 1 | 1 |
| 20 | 10 | 4 | 3 | 1 | 1 | 1 | 1 |
| 23 | 8 | 6 | 2 | 1 | 1 | 1 | 1 |
| 22 | 8 | 2 | 3 | 1 | 1 | 1 | 1 |
| 20 | 11 | 4 | 2 | 1 | 1 | 1 | 1 |
| 271 | 95 | 56 | 13 | 75 | 22 | 1 | 26 |
| 19 | 27 | 37 | 50 | 6 | 12 | 2 | 3 |

1741.

| N.W. | N.E. | N. | W. | S. | E. | S.W. | S.E. |
|------|------|-----|----|----|----|------|------|
| 19 | 12 | 5 | 1 | 6 | 7 | 1 | 13 |
| 21 | 7 | 1.5 | 3 | 1 | 1 | 1 | 1 |
| 23 | 8 | 1 | 1 | 1 | 1 | 1 | 1 |
| 28 | 2 | 3.5 | 1 | 1 | 1 | 1 | 1 |
| 24 | 7 | 4 | 1 | 1 | 1 | 1 | 1 |
| 20 | 10 | 1 | 1 | 1 | 1 | 1 | 1 |
| 20 | 11 | 1 | 1 | 1 | 1 | 1 | 1 |
| 24 | 7 | 2 | 1 | 1 | 1 | 1 | 1 |
| 20 | 10 | 2 | 1 | 1 | 1 | 1 | 1 |
| 18 | 13 | 2 | 1 | 1 | 1 | 1 | 1 |
| 21 | 9 | 4 | 1 | 1 | 1 | 1 | 1 |
| 20 | 11 | 8 | 1 | 1 | 1 | 1 | 1 |
| 258 | 107 | 34 | 8 | 84 | 26 | 1 | 56 |
| 33 | 51 | 35 | 78 | 12 | 43 | 5 | 24 |

| 1742. | | | | | | | | | |
|------------|---------|-----|----------|-----|-------|-------|-------|-----|-------------|
| N.W. | N.E. | N. | W. | S. | E. | S.W. | S.E. | | |
| 15 16 7 | 21 | 4 | 25 9 | 6 | 4 | 3.5 | 3.100 | 101 | 14 |
| 17 11 9 | 25 | 3 | 11 3 | 15 | 1 | 10.10 | 1 | 67 | 33. 22 |
| 18 13 4 | 23 | 3 | 33 7 | 10 | 7 | 7. | 4 | 73 | 31. 25 |
| 24 6 3 | 7 | 6 | 33 3 | 2.5 | 3.5 | 2 | 3 | 47 | 32. 17 |
| 23 8 2 | 4 | 3 | 25 3 | 2.5 | 11 3 | 9 5 | 8 | 6 | 68 30.5. 22 |
| 22 8 1 | 12 | 3 | 9.11 | 4 | 2 | 2 | 10 | 34 | 29. 22 |
| 13 18 6 | 7 | 4.5 | 4 6 | 6 | 1 | 8 | 3 | 32 | 28. 21 |
| 30 1 1 | 2 5 | 2 | 16 6 | 4.5 | 7 1 | 2 | 1.5 | 31 | 30. 25 |
| 20 10 10 | 5 2 | 2 | 5 5.5 | 3 | 2 3 | 1 | 2 | 22 | 27. 20 |
| 22 9 3 | 6 | 2 | 5 5 | 8 | 3 | 7 6 | 7 | 38 | 31. 13 |
| 17 13 6 | 4 | 2 | 5 2 | 1 | 2 | 6 | 11 | 28 | 27. 10 |
| 26 5 | 4 6 | 4 | 5 | 3 | 10 5 | 3 | 12 | 33 | 32. 24 |
| 247 118 52 | 106 21 | 24 | 166 60 | 22 | 85 33 | 9 | 49 72 | 18 | 73 9 |
| 30 60 54 | 11 8 13 | 40 | 12 60 59 | 30 | 85 33 | 9 | 49 72 | 18 | 73 9 |

| 1743. | | | | | | | | | |
|-----------|-------|--------|----------|-----|-------|--------|-------|----|----------|
| N.W. | N.E. | N. | W. | S. | E. | S.W. | S.E. | | |
| 20 11 6 | 7 | 4.5 | 1 2.5 | 1 | 5 2.5 | 112 | 10 | 15 | 1 |
| 18 8 1 | 4 | 1 | 4 11 | 2 | 3 | 11 | 3 | 13 | 30 34.18 |
| 20 17 3.5 | 6 2 | 2.5 | 3 16 | 2 | 2 | 2 | 2 | 2 | 35 27.22 |
| 14 15 6 | 8 | 7 | 6 15.5 | 5.5 | 10 | 33 3.5 | 3 | 10 | 28 20.17 |
| 15 5 | 13 | 40 2.5 | 3 7 | 5 | 7 | 5.5 | 5 | 13 | 63 30.22 |
| 16 10 12 | 17 | 7.5 | 5 | 2 | 3 | 4 | 2 | 2 | 73 30.22 |
| 20 12 1 | 2 | 3 | 4 7.5 | 3.5 | 8 2 | 4.10 | 5 | 9 | 34 27.22 |
| 19 8 | 1.5 | 2 | 6 9 | 7 | 2 | 9 6.5 | 1 | 6 | 34 28.24 |
| 23 3 1 | 4 | 3.5 | 9.5 | 2 | 2 | 9.5 | 18 | 3 | 35 28.24 |
| 27 12 5 | 2 4 | 3 7 | 8 3 | 9 | 4 | 8 | 5 | 1 | 23 29.20 |
| 18 16 3 | 11 | 1 | 10 | 9 | 1 | 4 9 | 5 | 1 | 39 31.19 |
| 14 3 | 6 2.5 | 8.5 | 3 5 | 3 | 11 8 | 10 1 | 2 | 2 | 35 32.20 |
| 28 121 43 | 63 23 | 16 | 51 82 | 30 | 45 40 | 7 | 73 72 | 29 | 93 4 |
| 24 44 | 6 6 | 23 | 27 88 48 | 30 | 45 40 | 7 | 73 72 | 29 | 93 4 |

1744.

| N.W. | N. | W. | S. | E. | S.W. | S.E. |
|-----------|----------|---------|----------|-----------|----------|---------------|
| 26 5 3 | 2 4 | 5.5 | 21 6 | 21 6 | 21 6 | 21 6 |
| 27 3 3 | 1 4 | 2 | 2 4 | 2 4 | 2 4 | 2 4 |
| 28 18 7.5 | 3 16 | 6.5 | 3 16 | 3 16 | 3 16 | 3 16 |
| 29 9 9 | 1 8 | 1.5 | 2 3 | 2 3 | 2 3 | 2 3 |
| 20 11 8 | 2 6 | 7 | 3 5 | 3 5 | 3 5 | 3 5 |
| 26 4 | 2 18 | | 3 12 | 3 12 | 3 12 | 3 12 |
| 22 9 12 | 2 2 | | 2 2 | 2 2 | 2 2 | 2 2 |
| 26 25 | 2 2 | | 2 2 | 2 2 | 2 2 | 2 2 |
| 9 21 | 2 2 | | 2 2 | 2 2 | 2 2 | 2 2 |
| 30 21 2 | 1 4 | | 2 2 | 2 2 | 2 2 | 2 2 |
| 23 17 4 | 2 6 | | 2 2 | 2 2 | 2 2 | 2 2 |
| 21 10 18 | 5 19 | | 2 2 | 2 2 | 2 2 | 2 2 |
| 19 147 66 | 22 80 22 | 7 43 60 | 22 81 88 | 41 143 46 | 33 56 11 | 2 24 52 |
| 70 95 47 | 78 6 12 | 7 14 11 | 19 | | 23 84 5 | 1 11 53 32 11 |

1745.

| N.W. | N. | W. | S. | E. | S.W. | S.E. |
|-----------|----------|----------|-----------|---------|---------|------------|
| 28 13 2 | 6 4 3 | 11 | 4 14 2 | 1 1 | 1 1 | 1 1 |
| 20 8 3 | 3 27 3 | 4 3 | 3 5 4 | 1 5 2 | 2 3 | 5 1 6 |
| 28 13 3 | 1 1 6.5 | 8 6 | 3 9 9 | 15 15 | 4 15 | 5 1 6 |
| 23 17 3 | 1 9 7 | 6 12 5 | 3 3 3 | 4 2 | 6 13 | 37 28 24 |
| 21 10 | 2 5 | 4 11 8 | 3 2 2 | 12 12 | 6 13 | 40 50 13 |
| 24 16 | 4 2 8 | 1 11 8 | 3 2 2 | 1 5 | 3 2 | 20 28 24 |
| 24 7 13 | 1 5 4 | 1 7 2 | 1 1 3 | 2 2.5 | 2 2 | 20 27 21 |
| 29 12 9 | 3 5 7 | 2 14 2 | 4 3 3 | 3 6 6 | 2 2 | 21 29 23 |
| 31 7 4 | 4 6 4 | 1 2 9 | 4 3 4 | 5 5 | 4 29 | 40 49 19 |
| 36 15 1 | 4 3 3 | 2 4 12 | 5 12 2 | 3 10 | 4 29 | 33 31 29 |
| 19 11 | 3 9 4 | 2 3 9 | 5 14 4.5 | 1 3 | 4 29 | 45 28 19 |
| 20 11 | 9 2 | 14 | 8 21 2 | 1 4 3 | 2 3 | 29 32 16 |
| 25 140 38 | 26 87 56 | 19 67 39 | 42 116 28 | 6 37 57 | 22 57 6 | 37 31 18 |
| 45 67 32 | 28 | 7 22 | | | | 7 41 31 16 |

| N.W. | N.E. | N. | W. | 6. | E. | S.W. | S.E. |
|------|------|----|----|-----|----|------|-------|
| 11 | 3 | 3 | 1 | 19 | 3 | 12 | 53.13 |
| 16 | 1 | 2 | 1 | 1 | 4 | 3 | 45 |
| 11 | 2 | 9 | 3 | 10 | 4 | 3 | 33.15 |
| 20 | 2 | 23 | 2 | 8 | 2 | 3 | 32.17 |
| 27 | 3 | 7 | 3 | 4 | 2 | 1 | 30.19 |
| 15 | 5 | 5 | 1 | 9 | 2 | 1 | 27.21 |
| 21 | 3 | 3 | 2 | 12 | 3 | 1 | 27.13 |
| 29 | 1 | 1 | 3 | 9 | 3 | 1 | 27.21 |
| 17 | 2 | 2 | 1 | 3 | 2 | 1 | 28.24 |
| 18 | 7 | 2 | 1 | 8 | 8 | 4 | 27.16 |
| 22 | 3 | 2 | 2 | 2 | 2 | 1 | 32.19 |
| 19 | 6 | 1 | 3 | 3 | 2 | 2 | 30.16 |
| 12 | 3 | 3 | 3 | 1.5 | 11 | 6 | 30.16 |
| 128 | 71 | 24 | 17 | 87 | 8 | 14 | 33.15 |
| 47 | 17 | 17 | 15 | 40 | 27 | 18 | |
| 40 | 15 | | | | | | |

| N.W. | N.E. | N. | W. | 1747. | E. | S.W. | S.E. |
|------|------|----|----|-------|-----|------|-------|
| 13 | 4 | 2 | 3 | 11 | 3 | 6 | 30.14 |
| 15 | 15 | 3 | 1 | 8 | 3.5 | 5 | 28.9 |
| 24 | 6 | 2 | 0 | 10 | 6 | 4 | 33.13 |
| 27 | 11 | 2 | 1 | 8 | 1 | 4 | 28.23 |
| 18 | 5 | 3 | 2 | 3 | 3 | 3 | 30.12 |
| 24 | 2 | 3 | 2 | 2 | 4 | 5 | 28.21 |
| 23 | 4 | 4 | 3 | 2 | 1 | 1 | 28.20 |
| 21 | 11 | 2 | 2 | 8 | 6 | 2 | 28.21 |
| 23 | 5 | 4 | 3 | 5 | 2 | 2 | 28.18 |
| 23 | 4.5 | 4 | 1 | 3.5 | 4.5 | 3 | 31.19 |
| 17 | 8 | 2 | 4 | 9.5 | 1.5 | 3 | 28.15 |
| 17 | 3.5 | 16 | 3 | 9.5 | 3 | 2 | 32.12 |
| 53 | 62 | 21 | 21 | 84 | 5 | 49 | 33.9 |
| 48 | 8 | 8 | 4 | 32 | 26 | 17 | |
| | 4 | | | | | | |

1. Though several curious and ingenious Gentlemen have of late Years favoured the Public with an Account of the Quantity of Rain has fallen monthly or yearly in several Parts of *England*, together with the sundry Station of their Barometers, Thermometers, and sometimes of their Hydrosopes; yet they mention not the Number of Days in which these fell, whether in continued Rain of some Hours or in Showers of shorter Duration, or in Showers whether in great Rains, or in misting or drizzling Dews; nor from what Points our frequent longest and greatest Rains came, nor the Effects on human or animal Bodies, such Enquiries might, perhaps, neither have been impertinent nor useless; for as giving the monthly Quantities of Rain is preferable to the Annuals, so the Number of Days, and the Manner in which it fell, would make us still better acquainted with the Climate we live in. For sometimes we see several Inches deep in a short Time, as in Thunder Showers, Spouts, and the parched, hardened Earth, is no better for it in a drouthy Spring or Summer; on the contrary, a very few Inches take a long Time, as several Days, or Weeks, to come down in small or moderate Rain, and yet make that Season wholly uncomfortable and unhealthy; for such durable Rain soaking into the Earth, turns its Surface like a Bog or Marsh, and prevents seasonable plowing and sowing, or rots the sown Seed, damages the Corns in Harvest, as well as is cut down, as was too often the deplored

Cafe from 1695 to 1700, and of *Sept.* and *Oct.* 1739 in the Moorlands, and the whole Winter of 1746 to *March* 1; cold Summers are mostly wet, without any great Depth of Rain falling.

2. All Places, high and low, dry and moist, Land and Water, are continually sending up Vapours into the Air, from the celestial and terrestrial Heat acting on Matter capable of Rarefaction; and Vapours thus raised, will be in Proportion to that Heat, according to the different Elevations and Depressions of the Sun, or other Causes of Heat, the Warmth of the supra and subterranean Soils, the Difference of the Dryness or Wetness of the Earth, the Thinness or Thickness of its Covering, &c. which Vapours are so copious, that some have doubted whether the Atmosphere contained any thing besides. For by the ingenious Dr. *Halley's* Calculation, the Sea alone affords more Vapours than almost triple the Quantity of Water emptied into it by all the Rivers. And the incomparable Sir *Isaac Newton* says, 'tis not only the Nature of Fluids, but of universal Matter, mutually to attract themselves, and the Parts of one another.

3. As a Corollary from the last, since the Atmosphere of different Countries, at sundry Times, contains Vapours or Exhalations of several Kinds, as well saline, sulphureous, &c. as watry; then sometimes, from invisible subterranean Causes, such Vapours or Exhalations may be emitted, as contaminate the Air in some Places, and make it unfit for healthy human

human Respiration especially; such may be justly called invisible, or insensible Qualities of the Air: Such was the third general Plague after *Christ*, which began in *Cataya*, and almost extirpated the human Race: And that of the Fog or Mist which carried in it the Infection of the *Sudor Anglicus*, when abroad, from City to City, and Town to Town.

4. Vapours, however raised from the Globe, are not only the Cause, but Matter of Rain; for being raised, they are condensed into Clouds and Rain; and the more Vapours are raised, and the colder the Region, the greater the Quantity of Rain. The greater the Quantity of Vapours raised in a short Time, and the colder the middle Region of the Air at that Time, the sooner will they fall down in Rain, Hail, or Snow. The slower the Vapours rise, and the warmer the middle Region of the Air, the longer will they be suspended before they fall.

5. Vapours being the Matter of Rain, then whatever Places, Things, or Surfaces afford most of these, occasion most Rain, if the Air is not well ventillated, and the Vapours and Clouds blown off to other Places by the Winds: Thus great Surfaces of Water emit far more Vapours than level Earth. High Mountains continually covered with Snow, their Surface thawed by the Summer's Sun, afford at that Time great Vapours, which occasion greater Quantities of Rain in the subjacent Valleys.

6. The greater the Heat of any Country is, the more vertical the Sun, the farther from the Earth

Earth in the Air, are formed Rain, Hail, and Snow: And the more obliquely the Rays fall on any Place, from near the Equator to the Poles, the nearer the Earth are they generated. For the Rays being refracted, are far removed from perpendicular, whereby the Heat is less, and the watry Vapours are contracted into less Room, and soon joining, form the watry Meteors; and by joining sooner, the Quantity of Water will be less, and the Rains seldom so severe. But the more oblique the Rays are, and the colder the Climate, the fewer sulphureous Exhalations rise from the Earth. As the Sun's Heat is less, the less frequent and terrible will Thunder and Lightning be. The fewer, smaller, and slower such Exhalations are, the higher will they rise, and be longer suspended in the Air, before they make their Coruscations and Explosions, far beyond the Ascent of the Matter of Rain, Thunder, and Lightning, which consist of larger, grosser, and heavier Particles, and have also a stronger Attraction, and therefore require a thicker and heavier Atmosphere to sustain them, though for a less Time. Hence during great and long Frosts, especially when they go off with little or no Rain, and in the Autumn after droughty Summers, *Aurora Boreales* are both frequenter, clearer, and terribler than at other Times: And also, that coldest Countries nearest the Poles, which have longest and severest Frosts, must have these Northern Lights both oftenest and brightest. Hence also their natural Cause being co-eval with our Globe, they must have been

been in former Ages as well as ours; only Naturalists and Historians have taken less notice of them. And from their great Distance from us, even their Coruscations seem as incapable of hurting our Persons as the Exhalation, farther than by the Panic with which they may affect some weak Constitutions of the timid Vulgar, ignorant of their natural Cause. Hence during the six droughty Years from 1713 to 1720, wherein they were most frequent, we find no Vestiges of their bad Effects, either in our Histories of Epidemics, or in the Bills of Mortality. - - - Bituminous, sulphureous, and other combustible Substances, with Nitre, being thrown out from under the Earth's Surface by Volcano's, burning Mountains, and fiery Eruptions, in or under which they had been treasured up, till by Heat, and the Accession of subterranean Air, they take Fire, and form a most terrible, invisible, subterranean Furnace, which liquifies, and disgorge with shocking Violence vast Quantities of Materials; which hot inflammable Substances meeting with Air, and taking Fire, but wanting a Funnel or Chimney to discharge their melted Minerals by, or having one, but either too little, or at too great a Distance from the Fire, may cause an Earthquake, more or less general or local, mild or terrible, as there is more or less of the Stowage of these Materials near, or as their Strata are thinner or thicker, lie shallower or deeper, as their Extent is narrower or broader, shorter or longer, and the Access of Air to this natural Furnace is less

less or more, and the Vacuum, or empty subterranean Space, is greater or less. The Extent of Earthquakes is in Proportion to the Depth and Quantity of accensibile and combustible Minerals, the Force of the Air that blows them, and the Size or Convenience of the Vent to the Fire and Smoke; and their Effects on animal Bodies, according to their Degree of Heat, burning Nature of the Minerals, and supraterranean State and Constitution of the present Air. Earthquakes are succeeded by Sicknefs and Mortality, when by them perennial fresh Springs are stop'd, and other temporary ones burst out, throwing forth Salt, stinking, sulphureous, discoloured Waters; when the Ground opens in several Places, and shocking Chasms, Rents or Gapes appear, vomiting out Smoak, Fire and Flame, or melted Minerals, with great Violence; or even a most nauseous sulphureous Smell, either vitiating the Air, or diminishing its Spring; or as far as the sulphureous Ashes, Smoak, Flame, or Cinders contaminate the Atmosphere. Most of these frightful Events happen near Volcano's, and where the Eruption is preceded or accompanied with bellowing or crackling Noise like great Guns, Fissures and Openings of the Earth, casting out Fire, Flame, Sulphur and Smoke; or with frightful Sounds, like Lamentation and Howling, rumbling Noise, &c. If they wanted these Funnels or Vents, not only the Countries about, but more remote, might be rendered quite useless, by terrible and fearful Concussions, and tearing them to-pieces by the

during their Seasons, and preserve them from Drought, and also retain their Waterings longer ; nor have they Declivities to carry it off, or such quick Springs or rapid Brooks to supply.

10. From the Table we see, that some Years are very healthy, and yet a greater Quantity of Rain falls than in others, which yet may prove very sickly and mortal. For a Constitution of the Air may be long very cloudy, foggy, moist, misting, or often dropping ; yet upon the whole, no great Quantity of Rain fall. But more may fall in a few Days continued Rain, or often sudden, great, heavy Showers ; for these dry, clear, and purify the Air, by bringing down the Vapours collected in it. The Air may be also well fanned and cleared from all injurious and hurtful Effluvia, not only by frequent Shiftings and Changes of the Wind, but by often pretty brisk Gales, and little sultry Weather, and few or short dead Calms ; and the Temperature of the Air at the same time suited in general to those several Seasons ; and no infectious or epidemic Diseases stirring, nor no Impurities left in the Air the preceding Year ; and all Food good and wholesome.

11. In the first Column of this Table for 34 Years, we find about 8141 fair Days, whether clear, cloudy, foggy, or misty, &c. and in the second Column about 4187 Days, on which fell either Rain, Showers, Snow, Sleet, or Hail : so that the fair Days are to the other about 8 to 4, or near two thirds, which at a Medium is about 240 fair Days yearly, and 125 rainy.

rainy. But tho' this is the Medium, yet they are far from being near equal every Year: For in 1716 were only 93 rainy or showry Days; in 1719 a hundred; in 1740, 95; in 1739, 157; in 1729, 152, &c. - - - However we may observe, that the driest and wettest Years do not vary far, each of them, among themselves, in the Number of their fair and wet Days; the other Years differ considerably more.

12. Of these wetting Days, on some it rained for a whole, half, or quarter Day or Night; such are called rainy: others showry, whose Rain continued not from above a few Minutes, to an Hour or two: others misling or drizzling; and some snowy, whether it snow'd whole, half, or quarter Days, or had only Showers, or spitting of Snow, or were Part of the Day Snow, another Sleet or Hail, and a third Rain. The Proportions of these stand thus, rainy Days 1135, showry 2130, misling or drizzling 340, snowy 394; the whole about 4000, besides 187 not included, being only small Drop-pings now and then, not fit to be justly reckoned with any of the rest. So that showry Days are near double the rainy, and the showry to the misling near 7 to 1; and the misling to the snowy as 34 to 39; and the Whole added together about a third of all the Days. So that at a Medium, one Year with another, there are little above 31 rainy, 63 showry, 10 misling, and about $11\frac{1}{2}$ snowy Days yearly. But though this is the Mean, yet there is a very wide Difference in the Years; for some had but 13, 17, 19,

19, or 23 rainy Days; others 60 or 70; but the fewer rainy Days the more showry, and the more showry, the fewer rainy.

13. Wind, which is a sensible current of colder Air, rushing out of one Place or Country into another, whose Air is more rarified. Our Winds are neither perennial, which always blow the same Way, as that between the two Tropics, called the general Trade-Wind, which blows perpetually from E. to W. Nor stated, which return at certain Times, as the Breezes which in the Evening blow from Sea to Land always; and in the Morning from Land to Sea. Nor the shifting Winds, which blow so many Months one Way, and all the rest of the Year have the opposite Direction; but ours are changeable and erratic, blowing now this Way, anon that, intermixed with Calms, without any Certainty or Regularity; only sometimes they have their more peculiar Times of the Day; as the West Wind about the Middle of the Day, which often falls South at Night. The N. is more common to the Morning, or to Seasons of the Year, as the S. or S. W. Wind to Winter; the N. N. E. or N. W. to the Spring. There are also particular Winds confined within a very narrow Compass; as the N. Wind on the W. Side of the *Alps*, which extends not above four or five Miles in Length, and not so broad, and seems only a Reverberation of the Wind. Not only do Winds differ in several Countries, (except they are either very strong Winds, or are fixed long in a Point) but they vary much in the same

same Country at the same Time ; as may be quickly observed, by strictly comparing several Journals of the Winds and Weather, kept in different Parts of this Island by judicious and accurate Persons, for the same Days and Years. And it is Storm or Hurricane in one Place, when the Wind is either very small, or a Calm in another, or it blows from a different Point ; only the Barometer is low in both Places, but lowest where the Storm or Hurricane is, or where the Wind is most Southerly, and higher where it is Easterly. Hence that Instrument or Gauge of the Gravity or Levity of the Air, is not to be so much depended on for a Prognostic of the Weather as is imagined ; since not only a Hurricane, or great Storm of Wind, or a deluging Rain in another Country ; but even in the same, though not in the same Place, will lower the Mercury very much ; and their going off will raise it : But more of this hereafter.

14. As to the natural Causes of the Wind, *Des Cartes* and *Robault* account for the general Winds from the diurnal Rotation of the Earth ; and so from this general Wind derive all the particular ones. But this Theory failed in the constant Calms in the *Atlantic* Sea, near the Equator ; and in the Westerly Winds near the *Guinea* Coast ; and the periodical Westerly Monsoons, under the Equator, in the *Indian* Seas. This put the great *Dr. Halley* on searching out, and substituting another Cause, which might answer these Objections ; and account as well for the periodical and variable, as general

Wind; which is the daily Action of the Sun-Beams on the Air and Waters, as he passes daily over the Ocean, considered together with the Soil, and the Situation of the adjoining Continent.

15. This Variableness of the Winds in our Island, with their frequent Calms, sudden Jirks and Shifts, often veering, contrary Currents, &c. even in the same Place, make it a difficult Task to make even a tolerable Table of the Winds, that for a Series of Years may come near the Truth; and by reviewing and comparing several Tables for different Places, I find each Place must have a particular Table; since not only the Winds are various at the same Time, in different Parts, but the Weather varies a great deal more within much narrower Limits; as Rain, Storms, Showers, Frost, Snow, Hail, Thunder, Lightning, &c. From these many and sudden Alterations of the Wind, many Hours and Quarters must be diligently collected and carried from one Place to another in a Month, far more in a Course of Years. This will necessarily occasion some Fractions of Days at least; as it will wheel about from its present Station, and bring a Storm for a quarter or half an Hour, and return to its former Point. Hence also Rain or Showers may be marked to come from a Quarter from whence the Wind is not noted in the Table to come, or a Thunder-Shower. And more rainy Days may be charged to a Point, than the Wind from it; and yet such a small Number of Years as most Journals contain (for it being

a dry Subject, most Gentlemen are soon weary of it) could not have answered the Purpose. But in these 34 Years, we have several considerable Changes of Drought and Rain, Cold and Heat, Frost, Plenty, Famine, Distempers, &c.

16. There is a great Difference in the Time of the Wind's Continuance in each of its eight cardinal Points; for it is almost 3000 Days out of 12370 in the S.W. and almost 1-5th Part of the Time N.W. above 1-8th in the West; near as much N.E. near 1-9th in the N. very little above 1-10th in the S. near 1-23d in the E. and scarce 1-17th in the S.E. Though this be taken at a Medium, yet they differ vastly in particular Years.

17. As to the Rains, those out of the S.W. are to all the rest, from the other 7 Points, above $12\frac{1}{10}$ out of 43. out of the N.W. above $6\frac{1}{2}$ of 43. out of the N. E. as $4\frac{1}{2}$ of 43. out of the N. near 4 of 43. out of the W. above $4\frac{7}{10}$. out of the S. above $6\frac{3}{10}$. out of the E. not 1-33d. from the S.E. 1-16th; So that the S.W. alone affords as much Rain as N. E. S. E. and N.E. all taken together; and as much as the N.W. N.E. and E. together; and much more than W. S. and E. though the Time the Wind blows from the former four Points, is to that it comes from the S.W. as 41 to 29 $\frac{1}{2}$; and the Time it blows from the latter three Points, to what blows from S.W. as 45 to 29 $\frac{1}{2}$.

18. The larger and vaster the Ocean over which our Winds blow, the longer and oftner they come from thence, the frequenter our

Rains. For one half of the Days of our S. Winds Continuance are either rainy or showry; and much above 2-5ths of the Days our Wind is S.W. little above 1-4th out of the N.W. much the same out of the N.E. not much above 1-5th out of the E. &c.

19. The ordinarily warmer Points of the Wind bring most Rain, as the S. and S.W. Hence probably is the Reason why most of the N. and N.E. Winds blow in the latter End of Winter, and in the Spring; for the Sun then ascending in the Zodiac, begins to warm their frozen or thawing Atmosphere; which, the colder it is, the more elastic, and rushes more impetuously and rapidly into our warm, which has less Force to resist it; which often makes them very high, chill, and parching in *March* and *April*. For the same Reason, when our S. S.W. or W. Winds are very cold, they are mostly very high, as they are rushing to a contrary Point and milder Air; and when two opposite Currents of Wind blow, as an upper and lower, the Atmosphere is not loaded with Moisture, and is a Sign of settled Weather coming on. The lowermost of the contrary Currents soon ceases, and leaves the uppermost sole Master of the Air. The Ascent of the Sun in the Zodiac may occasion our Frost and Spring N. and N.E. Winds; because, as it advances towards the Pole, it gradually warms the chill'd Air, which behind and on each Side is still compressed, and resisted by much colder, which has not yet felt the solar Influence; therefore toward the *Atlantic* Ocean is the only
Outlet

Outlet it has, and therefore must pass us in its Course.

20. Our N. and N.E. are commonly colder (according to the Season) than our S. and S.W. Winds, because they come from the frigid Zone; but the contrary holds true to the Inhabitants beyond the Equator; for the Sun and Air have warmed the N. Wind before it reaches them, as they do the S. Wind before it comes to us.

21. A Wind from the Sea is moister than from the Land: Hence, during the Reign of our S. W. Wind, so great a Number of the Days are either rainy, showry, drizzling, or wetting; for the Surface of the Water, by the Sun and Atmosphere, affords far more Vapours than the Surface of the Land; for our S. Winds coming sweeping along the vast *Atlantic* Ocean, must lick up immense Vapours from that prodigious Expansion of Waters. Our West Winds from *Ireland* and *New Britain* in *America*, as they blow over a less Tract of Water, bring fewer Vapours along with them, of which *Ireland* must have the first Share; for scarce 1-4th of Days the W. Wind blows, have either Rain, Snow, Showers, or other Down-fall; but half the Days of S. Wind have some or other of them; not only because of the vast *Atlantic* Ocean, but the Bay of *Biscay*, the Channel, and all the Sea between us and *Spain*. Few above 1-4th of our N.W. and N. E. Winds are rainy; for on the former of us lie the *Orcades*, *Iceland*, *Greenland*, and a great many more Islands; and as the Air is colder on

each Side, as it reaches nearer the Pole, the Water is less rarified, and fewer Vapours rise; and these that do rise, are longer sustained in a more heavy and elastic Air: Hence our Rains from these Points are often longer and heavier from the S. or S.W. and often about the Equinoxes. And as our E. Winds come over far larger Continents and less Sea, they bring seldomer Rains.

22. A Wind blowing from the open Sea is warmer in Winter, and colder in Summer; for then the Earth's Surface and Air are warmer than the Water, but colder in the Winter from the Frost and Snow.

23. A moderate Cold renders the Air cloudy, not clear; for its small Warmth raises, but dispells not the Vapours. But an intense Cold often clears the Air, both as it thickens the gross Exhalations, till they fall down to the Earth again, and because the Pores of the Earth are lock'd up, which hinders the Vapours to rise; but the Sea being not frozen, may send up Vapours to make the Air cloudy and turbid; yet the Cold keeps the watry Particles larger and heavier, and unfit to rise in great Quantity.

24. The colder the Air is, it is the thicker; therefore it is mostly colder in Winter than in Summer, by Night than by Day; which Grossness of the Air is increased in Winter, and in the Evenings and Mornings, by the Ascension of gross Exhalations from the Water: And even in the Summer and Harvest, the Afternoon and Evening Vapours, which had taken
Wing

Wing during the Abatement of the Sun and Earth's Heat, being grosser than those which rose during the Warmth, (if the Night is calm) they fall down again in plentiful Dew, and refresh the languishing Vegetables; but the former Vapours being more rarified, rise higher; and if the Night is windy, they are also raised too high to return in sweet Dew.

25. Exhalations raised by the Day's Heat, when the Sun's Warmth can no longer support them, being formed into Clouds, condensed by the Cool of the Night, gravitate in the Air; where first meeting with the higher Parts of the Earth, gather and settle on them.

26. Showers are only the Vapours ascended from the Earth into the Air, by the Wind blown into a Cloud, which is resolved into Drops of Rain too heavy for the Atmosphere to sustain, and so let fall on the Earth again. The Extent of the Ground on which it falls, will be in Proportion to the Dimension of the Cloud; its Duration, and the Quantity of Rain it discharges, will be in Proportion to the Vapour or Moisture, or Density of the Cloud, and the Velocity of its Motion by the Winds. Showers come in the same Course and Direction with the Wind, except Thunder Showers, which come against the Wind, because there are at that time two opposite Currents, one lower, the other higher. We meet with Instances of preternatural Showers, as of Brimstone, Frogs, Millet-seed, &c. of which after.

27. Snow is only Vapour raised by the Heat of the Sun, or Earth, or both; and by the In-

Intenseness of the Cold of the middle Region of the Air, is frozen under large Surfaces (hence its Levity) into beautiful hexagonal Figures, as both Dr. *Grew* and Dr. *Weilder* observed it, upon Examination. This Congelation of its Parts increases its specific Gravity, which hastens its fall to the Earth in fine Flakes, which sometime appear in different Shapes, from their being dashed against one another, either in the Fall, or by the Wind in the Air. But if this same Snow in its Descent fall thro' a warmer Atmosphere, it comes to us in Rain; or if one Part be melted, and not another, it is Sleet. If at any Season, the middle Region of the Air be intensely cold over any Place, whilst a Shower of Rain is falling, or about to fall, the Drops of Rain are frozen into Ice, and so form Hail. We shall meet with Thunder after it, often attended by Hail; for the Coldness of the Nitre that helps to form the latter, has also a great Share in producing the former.

28. Frost is that cold State of the Air, or Weather, which during that Time stops the Fluidity and Motion of Liquors, and turns them into Ice, and swells their Body near 1-20th of their Bulk; yet the Liquors, in this frozen or constipated State, emit their Vapours, as appears from the Decrease of their Weight. Many have written well on the Effects of Frost, as Mr. *Auxout*, Mr. *Boyle*, *Scheffer*, *Olearius*, *Pobart*, *Derbam*, *Remus*, &c. who have given us the Histories of the greatest Frosts in our Time, viz. 1672, 1683 and 84, 1709, 1716; as we shall shortly have that of 1740 from a
very

very eminent and proper Person. After which, the greatest was that that began *Nov. 30*, and lasted to *Dec. 10*, 1747. On *Nov. 30* and *Dec. 1*, fell a great Snow 14 Inches deep upon a Level in the Plains, and above 20 on the Moors and high Grounds. The high N. Wind blew it in Drifts, that covered Hedges and Walls, filled up Ditches and hollow Places. The Degree of Cold was tried on Holst Mercurial. The Pocket Thermometer, whereon the freezing Point is 32, it stood there the 2d Day, when the Ice was 3 Inches thick in one Night; open Air 20; hid in Snow 32; in the River 32; in a smoking perennial Spring 44; in Snow and Salt, 3 below 0. This Frost went off with a Week's great Rains and lamentable deluging Floods, which did much Mischief in many Places, carrying off Cattle, many Sheep, &c. From *Dec. 18* to *Jan. 19* was like fine mild Spring Weather, Fields green, small Frosts most Nights, as in *Apr.* and gone by 10 a Clock next Morning. From *Jan. 19* to 30, a S. or S. E. Wind, severe Cold, no Sun seen, all cloudy, moist, foggy, drizzling, and quite undesirable, like the Winter of 1746; and from *Jan. 31* to *March*, one continued Frost, except *Feb. 26* and 28. *Sept. 19*, 1728, began the severe Frost in *Germany*, exceeding that of 1709. All Rivers were frozen over, (which used not to happen before the Winter Solstice.) *September 21*, the Thermometer stood at 66, Wind N. E. *Oct. 3*, the Spirits stood at 72, Ice on stagnant Water half an Inch thick. *November* began with six Days

Days strong E. Wind. 5th Day Spirits 86, Ice much thicker. 28th Day 96, no more Rain, all Vapours were turned to Ice. *Jan.* 20, Spirits 126, Cold was intolerable. *Feb.* 3, Spirits at 86. 4th, 95. From this to *March* 8, they ranged between 80 and 100. *March* 8, 106; 9th, 110; 21st, 81. All Rivers bore Men, Horse, and Carriages. Many People perished in their Journeys, and more lost their Limbs in a short time. Crows fell down dead. Stags, Goats, and Hares died in great Numbers.

29. Take the Total of rainy, showry, misling, and snowy Days in 28 Years of the Table, and the Numbers that died in each of them; and see which of them has been most injurious to Peoples Lives. The rainy Days are 883; there died on them 968: Showry Days 1813; died on them 2071: Misling Days 323; died 288: Snowy Days 331; died 402. It thundered and lightened on 200 Days; died 226. Misling or drizzling Weather seems least hurtful, and snowy most fatal. Rainy is worse than showry. Let all that died in these several Sorts of Weather be subtracted from the Whole that died in 28 Years, the different Degrees of Mortality in these several States of the Air will appear.

30. 'Tis surprizing to observe the near Equilibrium in general kept up amidst such Vicissitudes of the Weather. In a Revolution of a long Series of Years, fair Days are to all others near as 2 to 1. The Number that dies on the former is to that of the latter very little short of 2-3ds; for on the former died 7189, on the latter

latter 3729; the whole registered Burials in the Parish in these 28 Years, were 10918, a third of which is 3639. Another Advantage of this Table is, that by comparing it with the above Account of Epidemics in these Years, it may be readily known what Kind of Wind or Weather is most mild, mortal, or favourable in each reigning Disease; and how the Danger arising to the Sick may be in some alleviated, or lessened. But to illustrate this in a Variety of Particulars would both be too tedious, and only answer the Purpose of one Set of Men; therefore shall pass it.

Another Use is, that by dividing each of these Numbers by 28, the Number of Years, may be seen how many rainy, showry, &c. Days happen yearly at a Medium. The Gentleman may also gather several useful Hints from this Table: For if he is about to build a House or Country Seat, near a City or great Town, he is directed which Side to chuse to be freest from its Smoak, Exhalations, &c. or if he is to raise his Structure in the Country, his Way was pointed out how to avoid frequent Mists, Fogs, Showers, and Drizzling on one hand, and how to eschew Damps, a too moist or heavy Air on the other. Nor need the Farmer be without his Instructions, to excite his Curiosity to seek after more. I shall only point one most useful, and which his Barometer could never tell him, *viz.* let him number carefully his fair Days in *February*, and he may commonly expect near about the same Number of rainy or showry Days in *Cor. Harvest*.

Table

The Monthly Totals of the Days, Winds, and Rains from each of the eight Points for all the 34 Years, beginning with *January*; only in 1709 the last 7 Days of *December* 1714 are added to *January*, and 1715 wants till *April* 1. There is also wanting the Number that died in 1709, 1746, and 47. So that we have their Number only for 31 Years. But the Monthly Number that died in 1709 are put in the last Column to the Right Hand, in the large Table.

N.D.
Jan.
Nov.
Oct.

Table XXVII.

| | | | | | | | | | | | | | | | | | | | | | | | |
|-------|------|------|-------|------|------|-------|------|------|-------|------|------|-------|------|------|------|------|-----|-------|-------|------|------|------|-----|
| 208. | 56. | 260 | 118. | 36. | 121 | 102. | 34. | 123 | 102. | 25. | 111 | 112. | 56. | 151 | 28. | 4. | 39 | 249. | 96. | 285 | 79. | 24. | 77 |
| 179. | 56. | 235 | 123. | 41. | 141 | 98. | 17. | 153 | 139. | 40. | 140 | 91. | 62. | 88 | 35. | 15. | 34 | 245. | 81. | 322 | 40. | 16. | 30 |
| 226. | 75. | 289 | 145. | 37. | 194 | 167. | 60. | 186 | 97. | 35. | 114 | 93. | 44. | 89 | 37. | 15. | 61 | 178. | 83. | 274 | 63. | 28 | 101 |
| 167. | 54. | 235 | 188. | 49. | 175 | 128. | 38. | 167 | 105. | 30. | 134 | 90. | 38. | 63 | 64. | 13. | 62 | 215. | 91. | 260 | 84. | 41. | 87 |
| 141. | 54. | 145 | 208. | 47. | 315 | 139. | 48. | 192 | 118. | 29. | 130 | 109. | 45. | 101 | 55. | 9. | 50 | 215. | 105. | 195 | 77. | 27. | 93 |
| 217. | 72. | 180 | 156. | 56. | 129 | 93. | 26. | 85 | 131. | 38. | 160 | 98. | 55. | 92 | 33. | 5. | 24 | 224. | 113. | 188 | 41. | 11. | 33 |
| 267. | 70. | 204 | 91. | 24. | 69 | 80. | 21. | 66 | 168. | 51. | 115 | 89. | 55. | 75 | 50. | 10. | 81 | 285. | 135. | 237 | 27. | 13. | 15 |
| 183. | 45. | 149 | 147. | 39. | 103 | 82. | 21. | 61 | 202. | 56. | 185 | 106. | 44. | 76 | 45. | 17. | 49 | 245. | 89. | 187 | 48. | 21. | 35 |
| 179. | 40. | 158 | 142. | 40. | 112 | 88. | 15. | 35 | 151. | 47. | 125 | 102. | 44. | 78 | 46. | 8. | 37 | 264. | 116. | 252 | 57. | 22. | 48 |
| 198. | 64. | 161 | 125. | 36. | 107 | 117. | 41. | 101 | 102. | 38. | 75 | 140. | 76. | 96 | 47. | 14. | 36 | 282. | 112. | 262 | 57. | 15. | 44 |
| 200. | 56. | 158 | 87. | 24. | 64 | 107. | 34. | 86 | 132. | 54. | 112 | 104. | 41. | 93 | 22. | 12. | 15 | 311. | 114. | 326 | 54. | 17. | 50 |
| 206. | 58. | 214 | 90. | 25. | 87 | 116. | 31. | 112 | 148. | 33. | 96 | 123. | 72. | 133 | 46. | 11. | 51 | 238. | 102. | 230 | 89. | 35. | 87 |
| 2371. | 700. | 2388 | 1620. | 454. | 1617 | 1317. | 386. | 1367 | 1595. | 476. | 1497 | 1262. | 632. | 1135 | 508. | 133. | 539 | 2951. | 1237. | 3018 | 710. | 270. | 700 |

The Total of rainy Days each of the 12 Months of the 34 Years, and the Number that died.

| | | |
|-------|------|------|
| Jan. | 331. | 1167 |
| Febr. | 328. | 1143 |
| Mar. | 377. | 1308 |
| Apr. | 354. | 1183 |
| May | 364. | 1221 |
| June | 376. | 891 |
| July | 379. | 862 |
| Aug. | 332. | 845 |
| Sept. | 332. | 845 |
| Oct. | 295. | 882 |
| Nov. | 352. | 904 |
| Dec. | 367. | 1010 |

Total 4187. 12261

8141 Fair Days.
4187 Rainy Days, &c.

30. Having taken notice of the monthly Quantities of Rain that fell in several Places in a Series of Years; it may not be improper to observe, that however the monthly differ in the same or several Places, yet it is surprizing there is no greater Difference in the Number of Days in each Month through the whole Year, during a Series of Years, than is in this short monthly Table; there being only 51 Days Odds between the highest and lowest of 34 Months; and one of these, *viz. February*, has commonly 3 Days less in it than the other; one having 28, and the other 31 Days, or about 1-10th of the Month: now add 1-10th of 379 to 328, and it will bring it to 366; then the Odds is smaller than between *July* and *January*, which is 48. *October*, in a Series of Years, has the fewest rainy Days of all the Months, the Difference between it and *July* being 81 Days. Nor is it true that Winter has either so much Rain, or so many rainy Days as Summer; *November*, *December*, and *January* having only 1050 wetting Days; and *May*, *June*, and *July* 1119. And though the Autumn has only 959 rainy or showry Days, and the 3 Spring Months 1059, yet much more Rain falls in the former than in the latter, though *October* has the fewest wet Days of all the Months.

31. As to the ordinary monthly Course of the Winds, this short Table shews *July* to have the most N.W. Wind, and the least S. E. of any Month in the Year. *May* has the least N.W. and most N.E. of any Month. *July*,
No-

November, and *December* have the least N.E. and *April* and *May* the most. *March* and *May* the most N. *June* and *July* least. *July* and *August* have most W. Wind; *March*, *January*, and *October* least. *October*, *December*, and *May* have most S. Wind; *April* and *July* least. *April* and *May* have most E. Wind, *January* and *November* least. *November*, *July*, and *September* have longest S.W. Wind; *March*, *April*, and *May* the shortest Time of it. *April* and *December* most S.E. *June* and *July* least.

32. The next Inquiry is, which of those Winds upon the whole, or in general, are most healthy or hurtful to us? The Answer is, the E. Wind of all other is most fatal, in Proportion to the Time it blows; for the Number of the Days it reigns, is to the Number that dies on these Days, as 4 to 5. The S.E. Wind is next; the Time of its Prevalency is to the Number of the Dead at that Time, as 6 to 7. The next is the N. Wind, whose Dead is to its Days as 26 to 23. The most favourable is the S. Wind, whose Days and Dead are near equal. After it the W. Wind, whose Odds between the Days and Dead is only 1-30th. Then the S.W. whose Time and Dead is near 19 to 20. Hence observe, 1. The most injurious Winds to us, of all others, blow most rarely, as the E. and S.E. for from 1723 to 31, the E. Wind blew only 4 Days. 2. When we have the least E. Wind, we have most S.E. in the same Series of Years; for from 1715 to 31, were only 57 Days E. Wind, but of S.E. 398. From 1732 to 1745 inclusive, E. Wind

379 Days, of S. E. only 211. 3. It is a kind Providence to us, that the most hurtful Winds are not the most prevalent; for had we as much of them as of the S.W. and W. what terrible Havock would they make of Mankind? 4. Though the S. and W. Winds are to all others most favourable to us; and yet their Proportion is but small to some others; yet it is more than that of the E. and S. E. the former being to the latter near 20 to 10. But these Winds are most prevalent, which prevent either a too great Increase or Decrease of Mankind, as the S.W. 5. He that has the Winds, Rains, and Seasons in his Hand, can make them either salutiferous or deleterious as he pleases, either to punish or save a Nation, as they are ripe for Judgment or Mercy; whereof we have abundance of pregnant Instances both in sacred and prophane Writings; and that also not of ordinary Meteors only, but of extraordinary; as we shall instance in some after.

33. As to the Mortality of these Months, it has been considered before, what small Difference there is of Mortality, during the different Winds, may be seen in the small Table. But this apparently small Difference is only in the general; but their dire Effects, when of long Continuance, and accompanied with an uncommon Temperature of the Air, whether dry or moist, cold or hot, clear, cloudy or foggy, rainy or fair, &c. and their sudden Changes, have been too often felt by the sad Experience of many Ages; though we have but few Histories of them left, only a Fragment of

Hippocrates; *Sydenham's Works*, which is a History of Effects without the Cause, whereby he is sometimes lost; some general Histories of *Cole of Bellona*; and others scattered in the *Miscellanea Curiosa*; and a few particular ones scattered in several Authors, but especially these two small inestimable Jewels, *Dr. Winteringbam's Nosologicum*, and *Dr. Huxam's Plymouth's ten Years Epidemics*. Hence there is nothing so much wanted at present, either in Natural History or Physick, as a good general History of Epidemics, or of the Effects of the Winds, Weather, and Mercury, to see the various Epidemics, their different Symptoms, Cures, Terminations or Transitions in divers Countries and Ages. A Work long wanted, highly necessary, and most extensively useful; the Want of which has cost the Lives of Millions in a long Series of Ages. But to explain a little the various Effects of these several Changes and Constitutions of the Air and Weather on human Bodies, and then to give these several natural Presages of these Changes according to the best Authors and strictest Observations, shall shut up this Discourse.

34. The Effects of the several Kinds, Changes, Extremes and Temperatures of the Air and Weather in divers Countries, were strictly observed by *Hippocrates*; his Observations are found just and true to this Day: And the Alterations in our Bodies depending thereupon, in different Constitutions of People and Seasons of the Year, have been well explained by several learned and great Men, as *Bellini*, *Wainwright*,
Hoffman,

Hoffman, Drs. *Winteringham* and *Huxam*, and others who have either written on the Air, Meteors, Non-naturals, Epidemics, or Histories of Diseases, &c. and have accounted for them pretty much as follows.

35. The Air, by Inspiration into the Lungs, dilates all their Vessels, and opens them to the circulating Mass of Blood, which here undergoes a great Change; for being become too thick and gross by its slow Circulation along the great Veins, and mixed with the crude Chyle expelled from the right Ventricle of the Heart, unfit for Circulation and Nutrition, till being dispersed into the small innumerable net-like Arteries of the Lungs, it undergoes a very great Compression, partly from the inspired Air, partly from the resisting Blood, and partly from the Contraction of the Vessels acting variously upon it every Moment; so that every Way it is shaken, broken in pieces, and has its *Molecules* diminished: Here its red Globules (each composed of five or six lesser watery ones) are composed: Here the Particles of fresh Chyle are ground down, become globular, and put on an animal Nature; all which are further promoted and perfected by the Action of Expiration, in the Corrugation of the Lungs and collapsing of the Ribs. This Comminution and Attrition are so necessary both for Circulation, Nutrition, and Motion of the Muscles, that none of them can be performed before the Blood has past the Lungs.

36. Hence it follows, that the Air should not only be pure and free from noxious Qualities and Effluvia, but of a due Gravity and

Elasticity, that it may distend the Lungs sufficiently; for however stronger Constitutions can bear either an increased or diminished Weight of the Air, and can live on the Tops of the highest Mountains, or in the Bottom of the lowest Valleys, yet the Sick, Weak, and Valetudinary cannot bear it; the latter require more elevated, the former more depressed Situation, as the Column of the incumbent Air is lighter or heavier.

37. Air fit for Respiration should be of a fit Temperature, neither too hot nor cold, since one Use of the inspired Air is to temperate the Heat of the Blood, which otherwise, by growing too hot, would soon putrify; for if the Air be as hot as the Blood, the Person must quickly die. The Air not only cools the Blood in the Lungs, but, by thickening it, prevents the Breach of the small pulmonary Vessels by its strong Ebullition. Hence Asthmatics, during the Fit, pant vehemently for cool Air, their Lungs being turgid with Blood, that they be not instantly suffocated. Such as are sick of ardent Fevers, or run, or wrestle hard, breathe very thick, that the fresh cool Air being often drawn in, may cool the Ebullition of the Blood, and keep it within its Canals. The Power of the inspired Air must thicken the Blood in the Lungs as much as the violent Attrition of its Particles, and Commination of its *Molecule*, expand it; otherwise, the rarified Blood would swell to too great a Bulk, which is the same as if it was of a redundant Quantity. - - - Hence appears the singular and invaluable Benefit of cool

cool fresh Air to People in Fevers, expiring almost every Moment in Anxieties and Languors. This, with judicious repeated Emissions of small Quantities of Blood, according to its Rarefaction and Effervescence, in ardent Fevers, exceeds unspeakably the Use of volatile Spirits and warming rich Cordials, which only increase the Symptoms, and hasten on the fatal Moment, from the too great Congestion and Rarefaction of the Blood in the Lungs: but too cold and frosty an Air must not be immediately drawn in by the Sick in too great Floods, such as that in Winter in *Russia*, *Siberia*, and these Northern Islands, or on the Mountains of *Peru*; such in this Case would not only be fatal to the Lungs, but to the other Parts of the Body. This shews us the wonderful Advantages to Travellers in such Air, of drawing in the Reak or Steams of warm Water into the Lungs, and the Danger of going abroad fasting in such Air as may suddenly occasion Peripneumonies, &c.

38. The external Pressure of the Air on the Surface of the whole Body, to the Amount of 32000 Pounds Weight, on a Person of a middle Stature, not only strengthens the whole Compages of the Body, and keeps its Humours within Bounds, but greatly promotes the Circulation of the Blood. For seeing the whole Body is continually pressed by an incumbent Atmosphere, its whole Blood must necessarily be propelled along the Veins toward the Heart; for so little of the original Motion received from the Heart, remains to the Blood in the larger Veins, that it could scarce ascend from the

Extremes to the Heart, except thus assisted ; so slow is the Circuit of the Blood there, that we find many Valves in the Veins, to prevent the Blood falling back in them ; therefore, without this, it could not have Force to overcome the Contraction of the Heart, rush into its Ventricles, and dilate it.

39. We see from the Barometers, that the Air is sometimes near one tenth heavier than at other times ; of which Difference our Bodies are sensible in a few Hours Space, as its increased or decreased Gravity accelerates or retards the Blood's Motion. Hence in dry clear Weather, when the Air is heavy and elastic, we find ourselves brisk and lively, from the greater Velocity of the Blood, and fuller and juster Discharge of all natural and necessary Secretions and Evacuations, especially Perspiration, on whose due and regular Discharge so much of the Vigour both of Body and Mind depends. By the greater Pressure of the Air on the whole external Habit of our Bodies, the Blood Vessels are more straitened, which answers the same End as though the Quantity of Blood was increased in the Vessels ; for it not only hastens on the moved Humours, but the greater the Pressure on the outward Habit, the more the Blood is forced on the internal and vital Parts of the Body, whose Action is thereby stronger. Hence a pure elastic Air not only overcomes the slowish moving Blood and crude Chyle in the Lungs, but over the whole Habit. But if too great a Weight and Elasticity of the Air continue long, it produces Diseases from the in-

increased Motion of the Blood, as Quinzies, Pleurifies, Peripneumonies, ardent Fevers, &c. especially with other Qualities of the Air happening, as of Cold, Heat, &c.

40. On the contrary, if the Air is too light and inelastic, it produces the contrary Effects: For hence follows a slower Circulation, diminished Secretions, a lesser Perspiration; thence a too great Lentor of the Humours; hence a Languor both of Body and Mind, while such a Constitution of the Air lasts; which if it continues, these Evils increase daily, till they produce Hysterics, Hippo, intermitting, remitting, putrid, slow, nervous, or eruptive Fevers, all flowing from too great a Lentor of the Blood, and its slow Circulation.

41. But because these Effects of the Air, which arise from its Gravity and Levity, receive very great Power from its secondary Qualities, *viz.* its Cold or Heat, Moisture or Dryness, I shall consider these. - - - Cold contracts and straitens the Vessels of the Body, and the Vessels being contracted, act far more vigorously on their contained Fluids, than when they are lax; for by the Cold the Elasticity of the Fibres is increased, and the greater Contraction of the Vessels both grinds down the Humours more, and accelerates their Motion; for as the Capacity of the Vessels is lessened, the Velocity is enlarged; and what attenuates the Blood, and accelerates its Motion, must promote the fluid Secretions and due Excretions; hence all the animal Functions are better discharged. But all these things being brought

about by a weighty and elastic Air, they become much more powerful, if at the same time the Air is cold and dry. But whilst all these Qualities combine or concur, they often produce a greater Force of Life than is just or safe; for so great an Attrition arises between the Solids and Fluids, and so rapid a Motion of the Blood, the Skin at the same time being corrugated by the Cold, there follows so great a Dissipation of the fluid Parts of our Juices, and a Retention of the grosser, that the Blood becomes acrid and viscous, and being unfit readily to pass the smaller Tubes, it begets all Sorts of inflammatory Diseases; and that especially in an excessive dry Air, which affords not due Moisture through the Skin, either to dilute the Blood in the Capillaries on the external Habit, nor to supply and lubricate the too frigid Fibres; which though it be of eminent Advantage to many, whom a cold, heavy, dry Air renders strong, chearful, and healthy; yet it is of eminent Disservice to others, who are thereby seized with acute Fevers, Pleurisy, Peripneumonies, grievous Asthma, Rheumatisms, arthritic Pains, &c. - - - A cold and moist Air is no less injurious; as it is cold, it constricts the Pores of the Skin, and the Moisture shuts them up; and both these diminish Perspiration much. A wet, showery, or rainy Season lessens the Gravity of the Air, and its Moisture lessens the Strength of the Fibres; and both these hinder the Impetus of the Blood, and the due Secretions and Excretions from it: Hence serous Collections, Distillations, Swellings

lings of the Jaws, Coughs and Quinzies, and other like Mischiefs, follow. If such a Season continues long, catarrhus, intermittent, remittent, slow, putrid, and nervous Fevers follow, unless the retained Humours are seasonably expelled by the Skin, Urine, or Stool. - - - Not only does a cold and wet State of the Air harm us, by diminishing Perspiration, but this cold Moisture is drawn into our Bodies, as is evident from the ready Penetration of Mercury, Turpentine, Ointments, Liniments, Oils, &c. though the last consist of much larger Particles than Water, and the first is 14 times the Weight of Water; bathing in Water, and the Communication of perspirable Matter from one Person to another in Bed, &c. - - - The Insinuation of this cold Moisture by the Skin into the Body, is a very likely Cause of cold-catching, as the Attack of that Indisposition is most common and general at the off-going of Frost or Storms by Rain, misting, or thick Fogs. And perhaps in this cold moist Air may be a Mixture of some frigid Principle or Matter, which may some how or other vitiate our Blood and Lymph. For to say that Cold is only a Privation of Heat, is saying nothing; or may be retorted, that Heat is only a Privation of Cold. But it is more probable, that there is an Addition of some saline Mixture with the Air; Why otherwise cannot artificial freezing be performed without Salts? Why otherwise does Water so expand itself by freezing, as the intense Cold makes the intermixed Air shrink into less Space, as fused Metals expand by the Interposition

interposition of igneous Particles that have separated the Cohesion of the Parts of the Metals? Why otherwise does Water sometimes freeze in a warmer Air, when the Spirits in the Thermometer stand in 55 Degrees, at other times it freezes not in a much colder, as when the Spirits are sunk to 65? Will Water freeze at all, or as soon, *in vacuo*, as in the open Air? Do not Snow Waters, or Water from melted Ice, produce greater Mischiefs in animal Bodies than other Water? If Congelation be only a Privation of Heat, then are the *Stiriacæ*, or Hairs, in a beginning Congelation of all congealable Liquors of the same Figure? Is not the dissolved Water of Ice much colder than before it was frozen, and unfit for several Purposes?

42. Heat not only expands the Humours of our Bodies, (and relaxes the Vessels) but Iron itself; the Rarefaction of our Blood and Relaxation of our Vessels substracts from the Momentum of the circulating Juices: Hence a Diminution both of Secretions and Strength: Hence we are never so strong, active, nor nimble in the Heat of Summer, as in the Frost or Cold of Winter: Therefore the Inhabitants of hot Countries sleep, or lie in their shady or subterraneous Dens, most of the Heat of the Day; but a moist Air, joined with this Heat, is very dangerous, as it relaxes our Fibres and Vessels. This Air is not only moist and hot, but light, which diminishes the Circulation much, and hinders Perspiration; hence such a State of the Air is justly deemed pestilential; for thus the obstructed Humours become daily more and more

more acrid, the Lymph, from want of its due Motion, grows fizy, the Blood turns grumous, and the Salts, by their mutual Attraction, form noxious *Molecule*, and the Humours quickly putrify: Hence arise many Distempers both acute and chronic, in a continued State of such an Air; in which, although we make but a short stay, the strongest Man will soon perceive the Strength both of his Body and Mind to languish: for the Air being loaded with Vapours, especially sulphureous, quickly loses much of its Elasticity, so that it has scarce Force to expand the Lungs; so that a little before, and during great Lightning, many People breathe difficultly, the Atmosphere being then filled with sulphureous Vapours: On the same account many weak People can bear a City but one or a few Days, but can live comfortably and chearfully in the Country. How many labour under various Distempers, which a pure clean Country Air can only cure? And who can bear the Steam of Brimstone? Country Air is far more pure and elastic than that nasty unwholesome Air of Towns, loaded with innumerable excrementitious and other Vapours and Effluvia, especially in Summer, when the Sun's Heat raises them up of all Sorts. It is also cooler, and filled with the cheering healthy Smell of Herbs and Flowers, and the Spirit of the Earth, most fit for reviving the Strength and Spirits, and expanding the Lungs, not tainted or corrupted with noisome Vapours, nor diminishes Perspiration, but promotes it much: Hence a pure pleasant Country Air excites new
Life

Life and Spirits in us, being so highly beneficial both for Respiration and Perspiration.

43. Though a hot and dry State of the Air is much wholesomer than a hot and moist, yet it wants not its Inconveniences, especially if it last long; for a dry Air is commonly more heavy and elastic, which accelerates the Blood's Motion much; but as it is hot, it exhausts the perspirable Humours: Hence the watery Part of the Blood is dissipated, and the liquider Parts of the Body fly off, and the thicker Parts of the Blood remain; for the Pores of the Skin imbibe no Moisture from a dry scorching Air: Hence follows a great and strong Attrition of the Blood, and a Heat, which being daily increased from the Air, constantly sharpens the saline and sulphureous Parts of the Blood, till at last they become acrid; and the more so, the less the Blood is cooled in the Lungs. If the freshest Butter, or any animal Oil, is long exposed to the intense Heat of the Sun, it soon melts down into a putrid corrosive Alkali; so a continued Summer's Heat so scorches or broils the animal Humours, that they are much sharper in Autumn than in the Spring; which is that Aduktion of the Blood so often mentioned by the Ancients: If from hence great Plenty of sharp Bile is generated, hence Cholera Morbus, Dysenteries, bilious Colics, putrid and malignant Fevers are so common in Autumn. The vehement Heat of the torrid Zone so exhausts the Humours of the Inhabitants, and dries their Fibres, that they seem parched up; their Blood is much thicker and blacker than in *Europe*:
Hence

Hence ardent and pestilential Fevers are so common in those Places, from slight Causes putrifying the Humours.

44. Seeing various Temperatures of the Air in different Climates produce sundry Diseases, why may not various Seasons in the same Region produce different Diseases? For if in the Spring long and dry N. Winds continue, Inflammations and inflammatory Fevers abound; and in the Autumn slow, putrid, and Quartan Fevers, Dysentery, Cholera, &c. seldom fail to rage. In like manner, one Sort of Diseases prevail in a warm moist Season, and another Sort in a cold dry Time: Hence we see what Constitution of the Air is most healthy, which answers the established Law of Nature according to the several Seasons of the Year.

45. As divers Constitutions of the Air and Places affect our Bodies diversly, the Reason and Manner of this Diversity must always be regarded by Physicians; and all of them with one Voice declare, that vernal Diseases bear bleeding much better than autumnal. Distempers even of the same Kind require much more plentiful Bleeding, and the Sick bear it far better in dry Weather, when the Mercury stands high in the Barometer, than in hot, moist, or wet Weather, which has relaxed the Vessels; and this never fails even in Diseases of the Breast. In *Rome* and *Athens* Pleuritics are worse of Bleeding, for their Situation is hot and moist; but in the *Hellepont* they are much relieved, for that is dry and often cold.

46. Strong robust People easily bear bleeding; but the flaccid, though they are equally full of Juices, do not; for from the Weakness of their Fibres, the Equilibrium between the Solids and Fluids is not easily restored: Hence follows a Kind of short Stagnation of the Blood. The Weight of the Air compresses and strengthens the whole Habit of the Body much, and promotes the Circulation; and especially if joined with Cold, it greatly increases the Strength of the Fibres; both these joined, invigorate the animal Powers, and the Habit of the Body itself seems as it were changed. In such a State of the Air, the Weak and Feeble can readily endure Bleeding.

47. Not only the Air is to be regarded in the Cure of Diseases, but for the Prevention and the Preservation of Health: Thus when the Spring is cold and dry, we are in danger of Pleurifies, Peripneumonies and Quinzies; but such as live on a moistening Diet, and tepid relaxing Drink, resist the Fault of the Season, and mostly escape these Diseases: But if there falls much Rain with the Cold, a moderate exhilarating Glass should be allowed as a Cordial, and the Body kept well clothed, that the Fibres fall not back, nor Perspiration hindered: But a hot wet Season requires a dry and restraining Diet, and rough Wine diluted with Water, and such Things as preserve the healthy Tone of the Fibres, and resist the Lentor and Putrefaction of the Blood, as the cold Bath is then most beneficial. The contrary Course is most pernicious, as the Use of

warm Tipple, hot Drink or Punch, Broths, Gossipes, hot or sweet Pots, &c.

48. Frost dies the Air, by condensing the Vapours, and gluing or cementing them to the Earth; the Earth itself, in the mean time, is so bound together with the Frost, that it checks the rising Exhalations. This is manifest at the Thaw; for though there is no Rain, yet all the Ground is wet, and as it were spues out Water, from the Vent given to the Vapours raised up by the subterranean Heat, but bound up in the Surface of the Ground; hence the saline and sulphureous Steams being locked up by a long Frost, they make the Earth fruitful; hence also on a long Frost going off with Rain, Fog, Mist, Misting, or Squalls, follow a general Run of catarrhus Diseases.

49. A very moist cold Temperature of the Air certainly produces Heaviness, Coughs, and other Disorders depending on a serous Colluvies, and that not only by checking Perspiration, but by the noxious Moisture loaded with Nitre of the Air, and penetrating the Pores of the Skin, and mixing with the Blood; for these Reasons Coughs are more frequent in *Britain* than in *France, Spain, or Italy*, which have drier warmer Air. That the Air penetrates our Bodies, is evident from its piercing the Substance of Plants, Bark of Trees, the hardest Wood, and even Rocks and Stones. *Keil* in his Statics has shewn us how quickly and copiously the perspirable Matter of one Person enters another, even to eighteen Ounces in one Night. Hence, Corrolla. 1. That fasting and
weary

weary Persons should neither expose themselves to an infectious Air, nor visit the Sick labouring under malignant or pestilential Fevers, or other contagious Diseases. 2. That People should be cautious how they expose themselves long in an infected Air, or if obliged to it, the Necessity of purging that Air, by opening the Windows, having a Fire in the Room, not keeping it mewed up, &c. 3. That healthy People should beware, that they admit not diseased Bedfellows, or of laying Children or young Persons with old withered dry Persons.

50. From a moistless elastic State of the Air, is produced too great a Lensor of the Blood; hence the Circulation not being forwarded in the small Vessels, and too great in the larger, and that much increased by catching Cold, it quickly diminishes Perspiration; therefrom comes a feverish Fit, which is soon over; then the Resistances cease, and a Sweat follows, except the Blood be tough and viscid; then either a putrid, slow, ardent, &c. Fever ensues, as the Tone of the Fibres is more or less elastic, and the Humours disposed; therefore the Bark, Alexipharmacs, and Volatiles should not be too suddenly given, in the Beginning of Intermittents especially, till proper Evacuants have been used; such a Mistake has often occasioned dangerous or fatal Pleurifies, Peripneumonies, or continual Fevers with a Delirium or Coma, Agues rarely kill; but if by Mismanagement, they are become Continuals, the Case is very bad.

51. In the first Attacks before, there is scarce any thing required, but that the Sick drink plentifully of some small, tepid, diluting Liquors, which takes off the Cold and Shaking speedily, and promotes Vomiting, if the Person is disposed to it, and soon puts an end to the Fever-Fit, by causing a plentiful Sweat; to forward which, let the Sick keep in Bed during the whole Fit; after which, give a Vomit, and follow it with a Laxative; or if there was a Looseness before, use Rhubarb.

52. To carry off, or mitigate Fevers, after proper Bleeding, (if necessary) let the first Passages be cleansed from putrid or gross Humours by a Vomit, whose Action may at the same time open Obstructions in the Viscera; hereby many Fevers have been prevented, or cured in their Bud or Beginning.

53. After two or three Fits, which have discovered the Genus of the Fever, and its proper Method of Cure, for which Purpose the Bark justly claims the first Place, conclude the Cure with Stomachics and Chalybeats; and if the Sick have had Relapses a Week or ten Days after these are taken, let them be repeated with the Bark; but the Cure of vernal and autumnal Agues is very different; as also in cold and hot Weather; of those in dry Season and a rainy.

54. In the E. or N. E. Wind, the Air is not only heavy and elastic, but often cold; therefore it more than ordinarily distends and presses the Lungs. The Atmosphere at the same time being heavier, compresses the Body

more ; and if colder, constringes the cuticular Nerves and Fibres more : Hence more Blood is thrust upon the Viscera, and its Motion is more rapid ; and therefrom comes a spitting or vomiting of Blood to tender Lungs, and many are seized with a Fit of Asthma ; to whom Bleeding, antiphlogistic Purges, Gas Sulphur, Vinegar, and Oxymel of Squills in Possiet Drink, or some small sharp Liquor, are good ; or Pedeluvia : But to flegmatic and humid Asthmatics, Vomits, Blisters, Volatiles, stronger Purges, and sharper Detergents, are proper.

55. Not only does a long, cold, dry State of the Air produce inflammatory Diseases, (by rendring the Fibres more tense and Blood thick) as Coughs, Pains of the Sides and Breast ; but the colder the Air is, Spitting is much more difficult ; which is an Affair of the greatest Consequence in Diseases of the Lungs, which are not to be resolved without free and easy Expectoration ; which is best promoted by frequent plentiful Draughts of some tepid antiphlogistic, nitrated, cleansing small Liquor, after suitable and necessary Bleeding. These falling short of the Design, Gum Ammoniac, Vinegar of Squills, with the like Attenuants and Detergents, come in play ; and sometimes oily Things or Volatiles may be used, still drinking plentifully of tepid small Potables, during the Cold especially. But if the Impetus of crude and sharp Humours on the Lungs be too great, mild Anodynes to check and thicken, and Blisters to the Insides of the Legs to divert the Humours another Way, must be used : For we

see Dropsies of the Feet relieve old Asthmatics, and with the going off of the Swellings, the Asthma returns: And a Strangury, or Swelling of the Scrotum, indicates Recovery in a Pleurisy; but to provoke plentiful Expectoration in a simple Pleurisy is needless; for in a cold Season, only free repeated Bleeding, with the liberal Use of emollient, diluting, tepid Drink, is needful with Nitre, Camphire, and Opiates; these dilute the Blood, relax the Fibres, ease the Pain, and abate the Rapidity of the Circulation. Where the Case is more grievous and severe, Blisters are applied to the Side. In a malignant Pleurisy, Scarification and Cupping should not be omitted. In the Beginning of a genuine Peripneumony, plentiful bleeding from a great Vessel, through a large Orifice, before the third or fourth Day, must be used, to make room for Diluters to be thrown in, and to ease the turgid small Arteries. But in an Inflammation of the evanescent bronchial Arteries, compressing at the same time the extreme pulmonary Arteries, the Danger is great, and Time short; if there is any Relief, it is from immediate profuse bleeding till the Patient faints. The Quantity of Blood let out in Peripneumonies, must always be proportioned to the greater or slighter Difficulty of breathing; if the Pulse rises on bleeding, the more should be taken. A Peripneumony is much more dangerous in general than a Pleurisy; and though the Disease has been slower, but not less fatal, yet it has been much more common since 1740 than before. A Pleurisy is known from its

attacking with Cold or Shivering, quickly succeeded by an intense Heat; then comes a severe and pungent Pain of the Side, darting to the Breast, or Spin, or Clavicles, a hard Pulse like a twisted Cord, and often a Cough. In a Peripneumony, there is an Oppression of the Breast, a Weight of the Lungs, and Difficulty of breathing; the expired Air scorching hot, a spitting up of purulent Matter, with a Fever and Cough, and sometimes an obtuse Pain of the Breast or Sides, a vehement Desire for cold Drinks, a panting and gaping for cold Air, &c.

56. Black or livid Spots in the Small-Pox, commonly called Hives, are, from dissolved Globules of Blood entering the Lymphatics; where stopping, they form those Spots like Bruises, and discolour the Skin. They shew the Blood to be putrid, and greatly dissolved, so as large Hemorrhages often follow; which frequently happens to Scorbutics without the least Fever; though their whole Habit of Body be marked with such Spots, who are unexpectedly seized with Discharges of Blood. In such spotted Fevers of any Kind, bleeding has in general been found hurtful, not beneficial.

57. That all People should have the same Quantities of Ingestion and Egestion, it is absolutely necessary that they all be of the same Constitution, have the same Strength in their Fibres and Vessels; that the Momentum and Velocity of the circulating Fluids be alike; that their Strength, the Activity and Diameter of all their secretory and excretory Tubes be equal; that their Taste, Appetite and Digestion be
alike;

alike ; that their Food and Drinkables be the same, in the same Quantity, of equal Digestion ; that their Cloathing, Houses, Accommodations, Exercises, Labours, Motions, Air, Climate, Heat, or Cold, Watching, Sleeping, venereal Pleasures, and a thousand other Things be alike, or the same, which are Impossibilities and Impracticabilities. However, the ingenious Dr. *Lining*, of *Charles Town* in *Carolina*, by an indefatigable Series of statical Experiments made on himself for a whole Year, has found that of the Spring Excretions, Urine is to Perspiration as 53 to 33, and to alvine Discharges as 26 ; in Summer as 36 to 51 and 26 ; in Harvest as 37 to 48 and 40 ; in Winter as 53 to 31 and 29 : So that the Discharge of the Skin is greatest in Summer, and least in Winter ; the Urine much alike in Winter and Spring, but least in Summer. The Stools are much the largest in Autumn, being to those of Summer or Harvest as 40 to 26, and of Winter as 40 to 49. Hence the Cause and Prevalency of Diarrheas, Dysenteries, and Cholera Morbus, may be easily accounted for at that Season ; for the Patents of the excretory Ducts of the Skin being straitened, and their Discharges lessened one thirteenth Part, or from 51 to 48, and the urinary Cutlet enlarged only one thirty-seventh, and the muscular Coat of the Bowels, especially where they are weak, not having yet attained their full Strength and Elasticity from the cooler Season, must necessarily in weaker Persons, or such as live more irregularly, or are oftener exposed to sudden Heats or Cools, have

a Colluvies thrown on them, which for some Days accumulating, must at last burst out in a Looseness; or if by a greater Stagnation in the Intestines and Stomach, a flagging of the Appetite, and pumping of the Bile upwards, it will turn out a Cholera, followed by a bilious Looseness. If that Season happen to be cloudy, foggy, hazie, moist, misting, or rainy, the Number of Sufferers in a Diarrhea will be much greater, and their Excretions much more thin and watery. If the Season is otherwise constituted, there will be more Complainers of the Cholera than Diarrhea; their Stools will be more bilious, and attended with greater Gripings and Tormina Ventri, &c. But if the prevailing Constitution of the Air be sultry, calm, southerly, and hot, it is a Sign of slow, putrid, or intermittent Fevers to succeed, to such as have escaped both Diarrhea and Cholera will be more exposed. Again, the Decrease of Urine between Winter and Spring from almost 54 to 53, and Increase of Perspiration from 31 to 33, whilst the Stools are only 26 in both, shews, that whilst the Appetite and first Digestions are so far from flagging, as they do in the Heat of Summer and idler Winter Months, that they are better, and demand a larger Supply, without an Increase by Stool, and a Diminution by Urine; then both a larger Quantity, and some less prepared Parts of the Food must go into and be retained in the Habit of the Body: Hence a greater Fullness in the Vessels, and from their Dilatation they become weaker, and the smaller Ramification less able to resist the

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Approach and Ingress of too large Globules or Particles. From these several Causes arise a Plethora, greater Difficulty in the Circulation and Secretions, some Obstructions in the several Orders of Vessels; hence eruptive and inflammatory Fevers, vernal Agues, Hæctics, &c. Here we see also the Reason why People look ordinarily better, fresher and fuller in the Winter, because the autumnal Perspiration of 48 is reduced from that to 31, and their alvine Discharges from 40 to 29; yet their Appetite and Digestion is much better and stronger. This also gives the Reason why People are weakest and faintest in Harvest, and can least bear any Evacuations; for the Quantity of Urine discharged, after all the exhausting Summer's Heat and Labour, is increased from 36 to 37, and of their Stools from 26 to 40. From this also it is evident, that an Increase of the alvine Digestion is of all natural healthy Evacuations the most weakening, as from 26 in Summer to 40 in Harvest. Hence we see the Communication between Skin and Bladder in temperate healthy People; for the Increase of the one's Discharge is the Decrease of the other, and *vice versa*: not only so, but, from one of Dr. Lining's Experiments, we see how quickly the Decrease of one of the Evacuations is the Increase of the other: For from July 1, 1740, from a Quarter after eleven a-clock till half an Hour after twelve, he drank twenty Ounces of Punch, (Water to Rum as 9 to 1) used no Exercise, was not exposed to the Wind, was clothed in a Holland Jacket unbuttoned; he

made in that Hour and Quarter one Ounce of flammeous Urine, and sweated so excessively, the Heat of the Air he sat in being 87 in *Fahrenheit's* Thermometer, that both his Shirt and Jacket were so wet, that he was obliged to shift into a Holland Jacket and Chintz Gown: Though doubtless his Perspiration was greatly diminished by the Coldness of the wet Cloaths, yet at the End of the 75 Minutes he had perspired betwixt $11\frac{1}{4}$, and $12\frac{1}{2}$, and $14\frac{1}{4}$ Ounces. Being then shifted into dry fresh Cloaths, and exposed betwixt $12\frac{3}{4}$ a-clock and $2\frac{1}{4}$ to the third Degree of the Wind's Force, and eaten $10\frac{1}{2}$ Ounces of roasted Lamb, Bread and Shallots, and drank 40 Ounces of Punch, and used no Exercise; in these two Hours he made $3\frac{1}{2}$ Ounces of Urine; and being exposed to that Force of Wind, perspired only twelve Ounces, though he sweated a little all the while, and the natural Heat of the Air being cooled by the Clouds. The same Day, betwixt $2\frac{3}{4}$ and $5\frac{1}{2}$ a-clock P. M. his Cloaths being the same, and using no Exercise, he drank between 23 and 25 Ounces more of Punch, and the Air being cooled by the Clouds overspreading the Heavens, the Quantity of Urine in these $2\frac{1}{2}$ Hours increased to $28\frac{1}{4}$ Ounces. But the Perspiration so diminished, that the Quantity of Moisture attracted by his Skin exceeded the Quantity perspired in these $2\frac{1}{2}$ Hours $8\frac{1}{2}$ Ounces. Here we see, 1. How speedily the Kidneys and Bladder supply not only the Defect of the Skin's Discharge, but of additional Moisture through it made to the animal Fluids. 2. How open
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and enlarged the external Vessels of the Skin are, after the Body has been heated, perspired much, that it quickly collects several Water from the Air. 3. This Water can both the Pressure and Windiness of the Air, even in its Meridian carried from the Skin, that can force so much Water in a small Space 15 Feet, through the Pores of the Skin, in a little a time. 4. What a great Addition of Moisture to the Air, and Diminution of Respiration so small a Matter makes, as the Clouds passing over us in the Air, though imperceptible to our Barometer. 5. This leads to what Drinks are fitted for at such Changes of the Temperature of the Air, not such being neither too strong nor weak, but soonest through the Body, with an agreeable imperceptible Stimulus, and leave no cold Drops or Drops behind them; as a French wine of 9 Parts Water to one of Spirit is best in Summer, and five of Water to one of Spirit in Winter, one thirtieth Acid in Summer, and one twentieth in Winter, and a finer is or with Sugar. 6. The Reprobates or Stupidest such have for their own Health, who drink this Liquor only two or three of Water to one of Spirits. 7. The Danger in general arising on wet Cloaths, especially when the Body is at Rest, which diminishes Perspiration, and clog up the Mouths of the external Vessels what perspired before, and by their Continual straiten the Orifices of the external Vessels. 8. Here we are directed to the speediest Method of restoring a diminished or diminished

Perspiration, *viz.* keeping the whole Body in an agreeable Warmth, and drinking such small, diluting, tepid Liquors, as may at once give the Vessels a small Stimulus, thin the Blood, relax and open the Mouths of the secretory Ducts, and leave the least Feculency behind them, to stick to the Sides of the Vessels, and require either a greater propulsive Force to mix, attenuate, and drive them on, or leave a Lentor on the Insides of the Vessels. 9. That since several pretty large Draughts of this Liquor must be drank, to take heed that it be not strong, lest in curing a Cold we run not the Risque of a Fever, or some Inflammation. 10. That Liquors some Degrees stronger may be allowed in the Winter than in the Summer, to keep up and strengthen the Tone of the Solids and Vessels under an increased Quantity of their contained Fluids. 11. That since from the Autumn to the Spring, the Quantity of Fluids are still increasing in the Habit of the Body, and the Perspiration fallen from 48 to 31, and from the Winter to the Spring, the Liquids are pushing their Vessels, or excrementitious Parts, from the Bodies Centre to its Circumferences, and from the Spring to the Summer increases the cuticular Discharges from 33 to 51; and from this Push, as one great Cause, the Spring Mortality is so much increased; then we see how imprudent and dangerous it is, especially for sedentary People, to indulge the Use of viscid glutinous Potables, which may not only leave a Sizyness or Lentor behind them at that critical Season, and so generate many and various

rious Sorts of Obstructions, but in a great measure buoy up the secretory and small excretory Passages of the Skin, *binc fabrium cohors*. Both Dr. Lining's Letters and Tables in *Philos. Transf.* Numb. 470, 475, deserve to be perused with the utmost Attention and Regard. Now for the Signs of Weather.

58. As the Winds are a general Prefage of the Weather, I shall begin with them. --- There is Reason to suspect a Tempest, when the Sea resounds upon the Shore, its Waves swell, and are like Fire, though there is a great Calm at Land; or murmuring like Wind is heard in the Woods, and among Rushes and Reeds, even during the Calm; the twinkling of the Stars is quickly obscured with the Clouds, or Mist; the Flames of Fire and Candles tremble; live Coals cast off their Ashes more, and burn clearer; the Rising Sun has pale Spots on its Orb, and dazzles, a strong S. Wind follows; if the Sun sets with reddish and fiery Spots, a great Wind quickly follows; a red lowering Morning may presage the same, or if the Sun is redder than ordinary; or the reddest Circle about the Full Moon; if the Stars shoot much, or seem to fall headlong from the Sky; if there is a small murmuring Noise like Thunder from the North.

59. As to the Winds, S. or S.W. Winds are often higher than N. or N.W. 2. The last are mostly higher by Day, and the first by Night; the Sun raises the S. and W. Winds, and in Summer lays the S. Wind. 3. If the S. E. Wind begins from a clearer Sky, it will not last

last all Night ; but an E. Wind continues most of the Night. 4. In what Quarter soever the Wind is, if it feel warm, it fixes there many Days. 5. When the Sun rises pale with many Spots in its Orb, and some of it hid under a Cloud, the Wind will quickly turn S. 6. When it is fixed 24 Hours, or more, in any one full Point, when it begins to turn, it often shifts directly to the opposite Point. 7. It mostly changes about the New Moon, and with it Changes of Weather. When the Clouds rake or drive with the Wind, it will soon flag and shift. 8. Inconstant Weather, when it alternately freezes one Day, and thaws next, (as in *October* and *February*) the Wind is often N.W. in the Morning, and turns Southerly as the Day rises ; then it is preparing for Rain, and in the Evening flies out to S. E. or S.S. E. and often with stormy Weather ; and when the Shower is over, it turns N.W. again, and very low ; or it is S.S.W. in the Morning, rises W. or N.W. with the Day, with Showers, and falls back S.W. in the Evening. 9. A Storm may be foreseen from black loose Clouds, lower than the rest, wandering to and fro ; or if at Sun-rising several Clouds gather in the W. if the Sun seems double or treble through the Clouds ; or if there are two or three broken or speckled Circles around the Moon, a great Storm is near. 10. The Storm will quickly be over, if Sparrows begin to chirp merrily, Moles creep out of Holes, if the King's-fisher attempt the Sea, or if a sudden Shower of Rain comes on. 11. If the Wind is E. or
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has been most N. for two or three Months; then turns S. though the first three or four Days are fair, yet on the fourth or fifth Day comes Rain, or the Wind shifts N. again. If it turns S. in a Day or two without Rain, and wheels N. with Rain, and returns S. the first or second Day as before, and shifts thus two or three times together, then it will be mostly S. or S.W. two or three Months after, as it was N. before. The like may be said of other Points. If it shifts quickly from N. to S. dry, it returns with Rain. These Things agree in general with the exactest Journals of Wind, and their Changes. 12. Thick Clouds suddenly dispelled by a strong high Wind, if the Wind turns and fixes in the opposite Quarter, it brings back the same Clouds loaded with Vapour and Water, which must necessarily fall down in a little time in Rain, Hail, or Snow. 13. Sundry Winds, in different Countries, have various Qualities; for at *Archangel* the N. Wind thaws, and the S. Wind freezes; in *Egypt* the N. Wind is moist, and the S. Wind is dry, &c. From Winds come we next to the general Signs of Rain; and as the Indications of it are now chiefly taken from the Barometer, I shall begin with it.

60. Hurricanes and Spouts are preceded by an absolute Calm. 2. The greatest Number of the first blow from S. to N.W. as the Wind veers from S. to N. fewer as it bears from S. to N. by E. 3. Most (not all) of them happen in this Island from the End of *August* to *March*; so that the moistest Months have most Hurricanes,

canes, which shews the Affinity between Wind and Rain. 4. Hurricanes are presaged by a too light, high, red Sky after Sun-setting, or before its rising, (but if the Clouds are thick, low, black, and a deep red, they portend Rain) or if the Sun sets in a thick black Cloud, and it rains not soon after, it blows hard next Day; or if the Sun darts out his Rays very high, a long while before it rise; if the Moon looks red, or has a great Circle, or is dim and misty, and no Rain, Snow, or Hail follows. The running and squalling of some Animals, as Geese, Ducks, Swine, &c. forbode either high Winds or great Rains. Great Workings of the Sea in a Calm, or red or yellow Halo about the Moon, denotes Wind or Tempest. A very red Rainbow, where the Rainbow begins to break, the Wind will rise, and bring heavy Showers; if it break in many Parts, tempestuous Winds are at hand. We are told in the *Phil. Transf.* that in the *Caribbee Islands* Hurricanes are certainly foreseen, prepared for, and their Mischiefs often prevented; thus if a Hurricane comes either on the Day of the Full, Change, or Quarter Moon; if on the Day of the Change, the Sky seems turbulent, the Sun redder than ordinary, a great Calm, the Hills are free from Clouds and Foggs; in Caverns of the Earth, or deep Wells, is heard a great Noise, as in a Storm; the Stars seem large, with great Burs about them; the N.W. looks black and foul, the Sea smells stronger than at other Times; sometime that Day the Wind blows hard Westerly out of its natural Course,

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the Hurricane comes that Day Fortnight. If the Signs happen at Full Moon, the Moon has a great Burning about her, and often the Sun, the Storm comes next Change, *i. e.* all the Signs precede the Storm just fourteen Days. 5. Wherever the greatest Calms are, there are the greatest and frequentest Hurricanes or Spouts, as on the Coast of *Guinea*, or where the Trade Winds cease to a Calm, as on the Coast of *Coromandel*, on the Southerly Isles in the Sea of *China*. But where they have few or no Calms the Year throughout, Hurricanes are rare, as in the *Arabian* Gulph, among the *Antelia*, or upon the Equator.----- Hurricanes are foreseen at *Bermudas* from the swelling of the Sea at some Distance from the Shore; its beating, when calm, with a great Noise against the Rocks or Shore; or it suddenly breaks in unaccountably upon the Land, and falls back beyond its Low-Water Mark, then soon returns with greater Fury, and falls yet back farther than before; or sometimes sends out a disagreeable Smell; or long Streaks of different Colours appear in the Air, called Horsetails, or very small dark Spots or Clouds appear in the Sky at a great Distance; or the Sky is covered with thick, black, globular, smoaky Clouds before a Tempest. *Boyle*. Hurricanes about *Goa* happen all in the Beginning of *March* and *October*. Ditto.

61. The Years most remarkable for frequent and terrible Thunder and Lightning are found so on account of unseasonable Weather, bad, corrupt, and unhealthy Air, as appears from
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fixty Instances in a Table by me. 2. Several of these Explosions have been preceded, attended, or quickly followed by Earthquakes. 3. But many more have been followed by Hurricanes and Tempests. 4. As a Proof of the bad, rainy, and inconstant Seasons wherein they have been oftenest, Famine and great Mortalities have often been the Consequence of them; whereof I find thirty Proofs in a Table by me. 5. Sultry Southerly rainy Years are most productive of Thunder and Lightning; yet they of themselves, divested of other Concomitants, seem not to portend great subsequent Calamities to Mankind. 6. Thunder and Lightning are more frequent and terrible in hot Countries, near the Line, or where there are Vulcanos, or great Stowage of Combustibles in the Bowels of the Earth, or on very low marshy Countries, than in *Britain*, whose Situation is happy, being neither scorched by the Torrid, nor perpetually frozen like the Frigid Zone; exempted from Vulcanos and burning Mountains, to ruin and swallow up her Cities and People; her Plagues neither so frequent, extensive, nor fatal as in some other Nations. 7. The drier any Country is, the less liable it is to Thunder, Lightning, and Earthquakes; and where no great Vapours or Steams rise from the Earth, Rainbows are not so frequent; but in such Countries are *Aurora Boreales*, even with Trains of Smoke following the darting Streamers, are no Strangers. 8. The most common Signs of Thunder and Lightning at hand, are, if the Wind in Summer has been two or three Days

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S. and the Air turns very hot, and Clouds with great white Tops like Towers, one on the back of another, with Black on their under or nether Side appear, then Thunder and Rain come in a little time. If the Weather is hot, and the Air smells of Sulphur several Days, expect a Tempest of Thunder quickly. If the Thunder rolls from S. to N. or from S. E. to N. W. or from the Zenith to N. or N. E. there often follows a Set of fair Weather for some Days after. But if it steer in the contrary Course, rainy Weather is commonly the Consequence. Many Chaps or Chafms in the Earth, without sudden Drought or a parching dry Wind, foretel Thunder. Sultry Weather without Clouds, and the Sun setting red and fiery-like, presage great Lightning that Night in the N. or N. W. without Thunder. Black, red, brown, white Clouds, piled up opposite to the Wind, in a hot Day, denote Thunder. - - *May* has generally as much Thunder as any Month in the Year; for the Earth having been locked up by the Winter's Cold, could not emite its grosser, saline and sulphureous Exhalations, till the Warmth of *April* and *May* opens the Earth's Pores, and gives them Vent.

62. In the warmer Countries, whose Rains like ours are uncertain, though they are much fewer and seldomer in the warm Months; yet they fall in much greater Drops and larger Quantities; though the Rains are longer in Autumnal or Winter Months.

63. The more severe the Cold of Summer is, and the thicker the Clouds, the greater Quantity

tity of Vapours is raised, the more Rain falls; except either a strong S. Wind carries off these exhaled Vapours, without shifting to the opposite Point, and bringing them again; or after a long Frost, when the middle Region of the Air still retains a freezing Disposition, till Harvest Rains come for a long Time, and are followed by another Frost.

64. The greatest Rains happen generally at, or a little before and after, the Autumnal Equinox, from the great Descent and Ascent of Vapours about that Time.

65. The earlier in the Autumn, and the later in the Spring, a very rainy Season sets in, the longer it continues.

66. A rainy Season succeeded by a cloudy, if the Clouds, though they seem thick and dark, rise higher and higher in the Atmosphere, it certainly denotes a Drought; for the Sun is daily diminishing and dispelling the Vapours and Water on the Surface of the Clouds, that they daily become lighter and rise higher, till they vanish, and a clear Sun-shine succeed.

67. As to Barometers, they are made of different Sorts, Shapes, and Sizes, some upright, others diagonal or wheel; some have a narrow Tube, wherein from the small Quantity and Weight of Mercury they contain, the mutual Attraction of the Tube and Mercury being too strong, spoils their Design. Others have a wider Tube, whereby the Gravity of the Mercury lessens and destroys the Force of that mutual Attraction, and gives the just Balance of the Air much better. The Reverend Mr. *Saul's*

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Account of this Instrument is admirable. Dr. *Halley*, Mr. *Patrick*, Mr. *Beighton*, and his Observations on it, amount to this: 1. When the Surface of the Mercury appears perfectly plain and level, the Pressure of the Air is equal and steady, and the Weather for some Hours will be the same. 2. It appears round and convex in wet Weather, being higher in the Middle than at the Sides; the Air's Pressure is increasing, and an Interval of fair Weather will soon follow. 3. If the Surface of the Mercury is concave or depressed in the Middle, the Pressure of the Air is decreasing, and the Weather will shortly be rainy, windy, or cloudy. But that the Judgment from these Appearances be just, it is necessary that the Tube be wide, the Mercury clean and pure, the Light good, and the Eye near the Tube. 4. In forming a true Judgment of what Weather is to come, the Point or Quarter the Wind comes from must be strictly regarded. 5. In calm Weather, when the Air is inclined to Rain, the Mercury is mostly low. 6. In clear, settled fair Weather, it is mostly high. 7. That before and during great Tempests of Wind, even without Rain, it sinks lowest of all, according to the Point from whence they blow. 8. That other Things being alike, the Mercury is highest when the Wind is E. or N. E. if not too high. 9. That in calm frosty Weather, the Mercury is generally high. 10. That after great Storms of Wind, which have brought the Mercury low, it usually rises very high. 11. That in the Seat of the variable Winds, *i. e.* in the La-

titude of 45 Degrees, and about 10 Degrees on each Side, is the greatest Variation of the Height of the Mercury, the Rise and Fall of it gradually decreasing toward the Equator and Poles; so that within the Tropics, and near the Polar Circles, it stands at near three tenths of an Inch. At 15 Degrees Latitude N. or S. from the Line, its Range is one Inch; at 30 Degrees two Inches; at 45 Degrees three Inches; at 60 Degrees two Inches, the same as at 30; at 75 one Inch; at 81 Degrees not one fourth of an Inch. This Estimate is for the ordinary Course of the Weather; but in violent Storms and Hurricanes within the Tropics, a much lower Depressi^on of the Mercury must be allowed. The Station of the Barometer above the Surface of the Sea should also be known. 12. That to judge truly of the Weather, the least Alterations of the Mercury should be regarded. 13. That as the Rise of the Mercury presages fair Weather, so its Fall denotes Rain, Snow, high Winds, or Storm. 14. In very hot Weather, the Fall of the Mercury denotes Thunder. 15. Its Rise in Winter is a Sign of Frost, and its Fall a few Degrees presages a Thaw. 16. Its Rise in a continued Frost shews Snow to be at hand. 17. If Rain happen presently after the Fall of Mercury, it will be but little, or short; or if it prove fair quickly after the Rise of the Mercury, it will be but of short Duration. 18. In rainy Weather, if the Mercury rises much and high two or three Days before the Rain ceases, then a settled State of fair Weather mostly follows. 19. If the Mercury falls much
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and in long fair Weather, before the Rain comes, then a great deal of Wet, or high Wind, is at hand. 20. An unsettled Motion of the Mercury denotes changeable Weather. 21. The Mercury's falling and rising is more to be regarded than the Words on the Plate; for when much Rain has fallen, and the Mercury rises to *Changeable*, it denotes fair Weather, though it last not so long as if it had risen higher; or if the Mercury stood at *Fair*, and falls and stops at *Changeable*, it is a Sign of rainy Weather, though not so much or long as if it had fallen lower. 22. Though the Fall of the Mercury in dark and cloudy Weather denotes Rain, yet it is mostly preceded by fair Weather; when the Fair comes, the Rain is near: This is often the Case when the Wind points Easterly. 23. The Mercury seldom varies for Thunder. 24. If while it is rising there fall some Showers, they have been driven on us by Thunder, though at a Distance. 25. If it falls before Rain, and none comes till it begin to rise, the Rain will either be little, or it has fallen at a Distance: 26. If it continue to fall whilst it rains, it will rain next Day. 27. If in fair Weather, when it has continued rising higher, it falls a little about Noon, and rises a little again in the Evening, it will be a Shower next Day at Noon or Afternoon, and fair again. 28. If it rises slowly for several Days together, expect a fair Season, for as many Days at least as it was rising, except prevented by small Gales of S.W. or S.Wind. 29. If it fall quickly, or rise quickly, the Rain or fair Weather will be short. 30. It

falls three or four Days before great Storms, and more before great Floods, but seldom for Thunder Showers, and falls on hot or sultry Weather. The preceding State of the Mercury (as well as the Winds) must always be taken in, for a right Judgment of the Weather.

68. Yet after all these ingenious Observations on the Barometer, the various Hypotheses of the Learned on the Causes of these Alterations, on the Ascent and Descent of the Mercury in the Tubes, which tend rather to demonstrate and establish the Truth and Reality of the Gravity of the Air, or its Gravity and Elasticity together, with the frequent and several Changes of that Gravity, and its ordinary utmost Extremes in different Latitudes; by which Extremes, and their present Medium, the Weather may be tolerably guessed at for two or three Days to come, or very often not so long. Barometers are a curious, useful, and ingenious Invention, to gauge or measure the Height, Gravity, Elasticity, Differences and Changes of the Air, as Thermometers are of its Temperature, and Hydrosopes of its Dryness or Moisture in their Places where they are fixed. But these make us not a bit wiser of the Cause of our Winds and Weather. When the Wind is E. and N.E. we see and know, that generally the Barometer is high, and the Thermometer low, because of the chill elastic Blasts from the Northern Pole, and over *Norway, Sweden, Russia, Germany*, and other Northern and Eastern Continents and Islands. But when it is S.W. or S, it is commonly warmer and moister, as it comes

comes from nearer the Line, and over vast Oceans, whether it is reverberated by the *Pyrennees* and *Andes*, or not. Then Barometers are lower, Thermometers higher, and Hydroscopes point to more moist. All this gives us only the present State, Gravity, Temperature of the Air, with its Moisture or Dryness; but it is nothing to Latitudes, Climates, Winds and Weather; nor can we from them tell what Changes may be in the next Hour, without recollecting and observing what usually has happened when these were in that Station before. *October*, *November*, and *December* of 1713 were all very rainy; and *January* of 1714 throughout, exceeded in Rain beyond what any living had seen before; yet the Mercury has rarely stood invariably higher in the Tube. 1735 was a cold wet Summer, yet the Barometers were often very high, and rose and fell as it were by sudden Jirks; so that there was no Dependance on them. Journals would soon afford many such Instances: But which of all these modern Discoveries can supply us with Hints what the ensuing Seasons will be? Whether the next Winter will be mild or severe, short or long? Whether the Spring will be late or early, Summer hot or cold, rainy or drougthy, the Product of the Earth next Season plentiful or scarce? Yet all these, and much more, have been known and told without them. Wherefore it would be more adviseable, prudent, and profitable for the honest Countryman to study and be better acquainted with his Book of Nature, to which he has daily Access; and if he closely observe

it, he may oftener depend on it than his Book of Art; whilst the Citizen, who wants his Opportunities, may attend to his Barometer and Thermometer, which often deceive him. For the former, if he understands his Book of Nature rightly, may often learn Intimation of extraordinary Sets of Weather or Seasons, sometimes before they come, of which the latter, or Citizen's Tackle, cannot inform him; though in his fancied, witty, ridiculous Sneers, he reject the supposed idle Observations of superstitious whimsical People, as a Cloud of foolish popular Predictions from the Brute and Vegetable World, which the Sagacity and Credulity of his Countrymen has established; these he sets aside, as not flowing from any natural necessary Connection that he knows of in the Things themselves; and because he knows them not, therefore they cannot be. Thus he assumes all Knowledge to himself; for which he, in his Turn, deserves to be ridiculed. But take him in a more grave and serious Mood, then he will cry out what vast yet regular Alterations a little Turn of Weather makes on his Barometer and Thermometer; and it is owing to Peoples Inattention and Intemperance in living, that they observe not as great and regular ones in their own Bodies. It is manifest, says he, a great Part of the Brute Creation have a Sensibility and Sagacity this Way beyond Mankind, because their Vessels are regular Barometers, affected only by outward Principles; but ours are acted on by divers, from within as well as without. And from the Animal, he will
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concede the Vegetable World may afford some Prognostics. This is giving up his Point in the amplest Manner, and contradicting himself. It is not reasonable to imagine, that Providence has favoured the rational Inhabitants of some Parts of our Globe with their certain stated annual Revolutions of Wind and Weather, and leaves the like Inhabitants of the variable Latitudes wholly at a Loss for near 6000 Years, of all Matter or Understanding to take Indications, Prefages, Marks and Signs of Weather from, especially when a total Incapacity to prepare for some extraordinary Changes might be of the worst Consequence. But the more wise and sagacious have, in all Ages, and several Countries, found Matter to make their Observations from, and carefully handed them down to us in a Cloud of no despicable Authors. Long and great Rains being by long and sad Experience found most hurtful to both Animals and Vegetables, it is necessary to collect all the Observations, and call in all the Assistance we can to foresee such Rains. I shall begin with the Barometer, seeing Barometers often deceive us.

1. Because there may be Signs which generally hold good over all the Globe; but the Mercury lessens its Elevations in the Tubes as we come nearer the Line, till it vary none at all.
2. Because even in *Britain* it falls as well for high Winds, Hurricanes, and Tempest, as for Rains.
3. Because the Mercury falls as well (though not so low) for Rains or Hurricanes at a great Distance, as if they were near, as on the Place.
4. Because the Mercury is very near as high

high when the Wind is N. or N. E. with Rains, as when it is in the S. with fair Weather, especially if sultry. Therefore the Quarter in which the Wind is, and the Height of the Mercury, should always be strictly observed. 5. In either very rainy or drougthy Seasons little Regard is to be paid to the sudden small Jirks of the Mercury; for in the first its Use means nothing, and in the last it is a very uncertain Indication of Rain, as it rises and falls with the Heights and Shifts of the Wind. The rainy Years of 1734, 35 and 39, and the Droughs of 1738, 1740 and 41, are sufficient Proofs of this in all Diaries of the Weather. 6. In very hot Weather during a fixed State of the Air and Wind, the Mercury often falls in the Day, and rises in the Night.

69. Though the Presages of the Weather from the Barometer are neither of that Certainty, nor gives that early Notice of its Changes that might be desired; and that even the illiterate Populace, and the Pagan World, have from Animals, Vegetables, &c. yet the Weather-glass is a curious Instrument, useful in various Cases, as in giving pretty near the Measure of different Altitudes, so especially to give the different Gravity, or Density, or Levity, or Inelasticity of the Air in several Places, or at sundry Times, Changes, or whether its too great Weight or Lightness (exclusive of other Qualities or Accidents) is most injurious to the Health and Life of the Inhabitants of a Country or Climate. With this View I took the monthly Mean of the Barometer from Jan. 1, 1736 to Jan.

Jan. 1. 1743, (seven Years of as great Variety of Drought and Rain, Heat and Cold, Plenty and Scarcity of Provisions, Peace and War, Health and Sickneſs, &c. as any Part of the Journal of the Barometer contained) with the Number of Days the Mercury ſtood above or below that Mean, and how many died in each: The Reſult was, above that Mean 1389 Days, in which died 1873; below that monthly Mean, 1168 Days, died 1645. Then I took the collateral Medium of each of theſe Months, and the Number of Months above the Mean was 31, wherein died 1357. The Months under it were 53, died 2193. I took alſo the whole Range of the Mercury each Year ſeparately; and I obſerved, that the Year wherein the total Altitude was moſt of all here, was alſo the moſt ſickly and fatal: For in 1741 it was 9694, died in the Pariſh 706; the Total of 1742 was 9086, died 579; the Total of 1739 was 8533, died 377; the Total of 1740 was 9282, died 428: So that tho' there is no material Difference between the Deaths in the firſt, yet the ſecond and third throw it fairly on the higher Station of the Barometer; yet without laying the Fault on the Air, but on the Qualities that attend it. I next took the monthly Mean of the Thermometer for two Years and eight Months, with the Number of Days below and above the Medium, and how many died in each. Spirits were below the Medium 390 Days, died 495; above the monthly Medium 553 Days, died 546. Here we ſibly ſee the Effect of Cold; and ye

much of Cold as of Moisture, Frost, or Drought that may attend it; for we know in much colder Climates the Inhabitants live much longer, and are healthier, (with proper Care) but their Cold is dry. This leads us insensibly into a sure Way of determining that stale perplexing Question in Physic, which has cost us so much Study and Writing, and is otherwise irresolvable; whether all Epidemics do not depend upon the sensible Qualities of the Air? Or whether do not some depend on sensible, and others on insensible Qualities? But by a close Attention to, and comparing Journals of the Barometer, which shews the Increase and Decrease of the Air's Gravity and Elasticity; the Thermometer, which gives its daily Temperature; and the Hydroscope, which shews its variable Moisture and Dryness; this may be done, provided we always eye, the late especially, as well as present Constitution of the Weather. And this not only discovers its natural Cause, but its Method of Cure. And except with regard to this one medicinal View, which every Physician should study and be well acquainted with, I cannot see any mighty Matter of Odds in it, with regard to such as believe a Providence, whether God corrects and punishes us, either more immediately without the Intervention of these natural Causes, or by them, or sending an infected Person or Goods into our Country, or blowing a Vessel with an infected Crew into our Harbour, or on our Coasts; only as the first is generally more severe, and strikes more awfully for a shorter time; so the latter are ushered

ushered in more slowly, and give more Time for Repentance and Reformation.

70. We shall therefore give some such Signs of Rain as have been regarded in all Ages, by the most strict Observers of Seasons, as *Aratus*, *Virgil*, *Pliny*, *Plutarch*, *Fromond*, *Vossius*, &c. collected, and ingeniously accounted for, by *Mr. Pointer*; and with them join some Remarks of our own. The Signs of Rain in general are, Strings of musical Instruments swell and sound sharper; Sea-Fowls in Flocks resort to Land, and Land-Fowls to washing and dabbling in Water, or they pick and prune their Feathers much with their Bills; Herons, Swallows, and Flies fly low; Crows gather in Flights, fly with their Heads upward, croak, are hoarse, and call for Rain; Geese, Peacocks, Swallows, Swine, Asses, Deer, Foxes, &c. make a great Noise; Sheep and Cattle rise early to feed hard; Fishes play and skip on the Surface of the Water; Worms creep out of the Earth in Crowds; Moles labour hard; Bees and Ants keep at home; Frogs croak; Flies, Gnats, &c. bite bitterly; old Peoples Pains and Aches waken afresh; the Sun without the Clouds shines watry; the Sky is red at Sun-rising, or is red in the S. or S.E. after Sun-set; the Moon looks pale, as if compassed with a great Circle, and she is dim and misty, or has a Rainbow about her; if her Horns are broad and blunt at first rising, or within two or three Days after the Change, it will be rainy Weather that Quarter, but go the rest; if the Clouds seem like Rock Towers, if small Clouds gather and look

and bigger, or Clouds sit down on the Tops of Mountains, if a Rainbow appear after a long Drought, if it turns thicker, grosser and darker, if in the W. it will rain with Thunder; if Dandelyon lie down, and Pimpernel-flowers are close shut, and Trefoil-stalks are swelled and erect, &c.

71. We know that Rain is at hand from Ropes and Cords swelling and shortening; the Mercury falls in the Barometer; Marble or other Stones, Brick or Boards, Walls or Doors sweat; Salt turns moist; the Sun rises of a darker red, broader, darker, or paler than ordinary, or with a yellowish Circle inclining to white, of a misty, muddy Colour, darting its Beams from N. to S. or it sets behind a thick dark Cloud; the Stars seem bigger, paler and duller; if bright and blazing in Summer, they portend Wind and Rain; or if they appear very numerous, with an E. Wind and small Clouds in N.W. it rains in the Evening; or if Mist ascends from Water or Marshes to the Tops of Hills; if there is a Haziness in the Air, so that the Sun's Light quails by Degrees, and his Limb is ill defined, is a Sign of Rain, especially if the Mercury falls; but the like Haziness at Night is a sure Sign of Rain. Though the Height of the Mercury varies not so much in the Summer, and to past the Equinox, as to other Times of the Year, yet we have the most Rain in these Months; hence it seems that either the Range of the Mercury varies with the Temperature of the Climate and Seasons, which in reality it does, or that the different Warmth
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(and consequently the Rarefaction of the Vapours) in the upper and lower Currents of the Air, and these Currents mixing, and sometimes wholly interchanging, are the more immediate Cause of Rain, if not also of Thunder and Lightning. Black fleecy Clouds, formed on a sudden Hurry of the Wind, are mostly followed by a Shower. In hot Weather, the Wind shifting almost round the Compass in a short Space, is often succeeded by a Thunder Shower. Sometimes, when the Mercury has been a good while high, and so continues, missing Rains fall about the New or Full Moon, which are only Vapours from the Sea-coast driven off by the Wind.

72. But if Rain is at some Distance, the Mercury falls slowly; if there are many white Clouds like Sheep-wool spread in the E. it rains in three Days. Very thick black Clouds threaten Rain at Night, or from the W. next Day; if the Rainbow appears together at once, it rains in two or three Days after. A general Mist at New Moon foretells a rainy Old Moon; or a misty Old Moon threatens a rainy New Moon.

73. That the approaching or present Rain will be little or short, is known from the Mercury keeping at or near its former Station; the Clouds are high, but neither very black nor heavy. All Rain coming quickly, goes quickly; if it begins to rain an Hour or two before Day; if there is a Rainbow in the Morning; or if the Sun rises broader in a Summer's Morning, &c.

74. That it will rain much or long, is known from the long, slow, gradual Fall of the Mercury, from long preceding dry Weather. Profuse Sweats of Stone, Marble, Brick, or Board Walls, Ceilings or Doors, the last swell and crack as well as sweat. Salt melts, Cords and Ropes thicken and shorten much. If the Sun rises very early, broad in Winter and reddish; the Refraction, or turning aside the Rays of Light from their straight Course, as soon as they enter the Air, prevents their coming directly from the Heavens to our Eyes through the Air; from which Refraction or Deflection of the Rays, it is that we see the Planets both before they rise and after they are set, when they are twenty Degrees of Elevation under the Horizon: This Refraction is the greater, and it is longer, before the Sun or other Planets rise, as the Air or Medium is thicker or grosser; or the grosser the Medium, the more the Sun or Moon is under the Horizon, when we first and last see them; or the lower the Air is, so much more are they under the Horizon when they first appear; and the more they are under the Horizon when first and last seen, the shorter the Twilight. Hence the Cause of our Morning and Evening Twilight, is the Reflection of the Rays of the Sun from the Particles of Air, which reverberate them by their irregular Situation; for the Evening and Morning Twilight begin when the Sun is about eighteen Degrees under the Horizon. Hence the Twilight is from a double Refraction or Reflection. Not only does the Sun rise earlier
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and broader in Winter, but reddish before Rain: If small Clouds gather and grow bigger and bigger, till they slowly cover the Hemisphere, and the Air turns sensibly thicker and thicker, Sun, Moon and Stars shine duller and duller, till they are wholly obscured; if there is a very large Rainbow, in the E. especially, or if there is none before the Rain: If it begins to rain from the S. with a high Wind for two or three Hours, then the Wind falls, but the Rain continues, it will be a long Rain, till another Wind rises; but such long Rains scarcely happen above once a Year. S. and W. Winds bring largest and greatest Rains. Woods or Mountains seeming very near, show Rain to be at hand; as do Sounds continuing strong, and heard at a great Distance, without Mist or Fog: If Smells, agreeable or disagreeable, are perceived strong, and at a greater Distance; if Rivers fall suddenly after great Floods, or if the Clouds seem high and of a shining blueish black, or livid during the Rain, or a speedy Day or two of bright Sun-shine Weather coming on a cloudy Drought, with a shifting Wind and falling Mercury; if after a long Drought, the Wind veers often and suddenly; the long shutting and small opening of several Plants, Flowers and Downs; if several Tempests, or long, cold, cloudy Weather, frequent Thunders rolling from N. to S. if the Rain is intermixed with several Nights Frosts; if in the Spring the Frogs Spawn is thrown near the Side of stagnant Waters; all these are Prognostics of a long rainy Season.

75. Miners sometimes foresee Tempest from their Lights burning blue, when they are free from all Apprehensions of a Damp. If several Fires shine in the Night in different Places either on the Sea or Shore; if small thick Clouds rise quickly out of the Sea; if its Waters seem all on Fire, they indicate a Tempest at hand. --- Some Miners can foretel Changes of Wind at fifteen or twenty Fathoms deep; for many Hours before they veer to the S. the Water at the Bottom appears thick, but when it is changing to the E. it becomes unusually clear. --- Some Springs certainly foretel great Rains or Tempests some time before, as *Quarn*, Chalybeat near *Derby*, whose Waters turn white or milky; and the whiter it is, the greater is the Rain or Tempest. From Rain adjourn we to Snow and Hail.

76. Besides Hail, Snow, Rain and Dew, several other strange Bodies, both light and ponderous, solid and fluid, have fallen, or been poured down out of the Air, at sundry Times and divers Places, to the Surprize not only of the Vulgar, but even of Philosophers themselves; such as the Board of Ice which fell in *Burgundy*, June 2, 824, fifteen Foot long, seven broad, and two thick; and the great Stone mentioned by *Plutarch*, that fell in *Thracia*, after it had hovered about in the Air seventy-five Days; it was so large, that it loaded a Waggon: and one that fell in *Alsace*, November 29, 1630, which weighed three hundred Pounds Weight; and a Shower of Stones which *Marcellinus* says fell in *Thrace* in 1452; and the

the several Showers of Stones mentioned by *Tit. Livy*, which at very different Times fell on the Mountain *Alba*; the last Shower continued two Days; some of them were red-hot, others cold; some like hard Clods of Earth, others like Sand or Dust. Several more Instances of this Sort are to be found in Histories. Hence, 1. As to the Formation of several such Showers, perhaps no rational Account can be given of them. 2. Some of them we find have been produced by Hurricanes, Whirlwinds, Earthquakes, Volcanos, &c. such as that which routed the *Persians*, about to plunder the Temple of *Apollo* at *Delphos*; and another the *Gauls* on a like impious Occasion; and that which discomfited the Confederate Armies before *Joshua*. Several such Showers are said to fall in *America*. Late and remarkable is that in the *Archipelago* in 1707, on the Emerfion of the Island *Santorine*, from the Bottom of the Sea. *Montfaucon* says, the like happened near *Triporgo'a* in *Italy*, in 1535, from an Earthquake. Another Shower poured down about 1200 Stones near *Abdua*, like rusty Iron, strong, smooth, hard, and of a strong sulphureous Smell. 3. Hence we see what solid Bodies may be supported a long while in the Air, as well these mentioned, as the many Showers of great Hail of several Inches Diameter as well as Circumference, and from Ounces to some Pounds Weight, &c. 4. We see the Atmosphere itself, though capable of sustaining great Weights, yet has been, and may be loaded by an Aggregate of either Exhalations of unwieldy Bodies

thrown or carried up into it, yea even of Vapours, which though they may expand, and fill or cover a larger Space or Area, yet become too heavy for that elastic Fluid to sustain, even when expanded on its Surface: Hence the fatal bursting of Clouds, shooting of Stars, Flakes of Ice, monstrous Hail, &c. 5. We find, that when the Pores of the Earth are very open, Exhalations rise plentifully, when the Air is disposed to support them; Nitre and Sulphur may be so compressed, as to be shut up by the Frost in the Air, in the midst of great Hailstones. 6. It is Ignorance or Superstition to imagine, that every Shower of small Stones, Dust, Ashes, or Smoak, should be thought ominous, seeing on Eruptions of Vulcanos, or Erection of Islands out of the Seas, such Materials are thrown out, and carried to a great Distance in the Air, by strong swift Winds. 7. From the great Alterations of Air, Rains, Dews and Springs, during and immediately after Earthquakes, where Flashes of Fire and Flames rise out of the Chasms of the Earth, or where there are burning Vulcanos discharging their liquid, confused, mineral, bituminous Substances, there seems to be a curious, natural, subterranean Kind of Chemistry carried on at Times in some Parts of the Bowels of the Earth. 8. Bloody, milky, or other unnatural Springs, need not always be ominous and frightful, since several supra or subterranean Commotions of a deep-coloured Boile, red Clay, or deep ruby, may cause Springs to send out Water red as Blood; or if a Vein of Brazil be
mixed

mixed with the hidden Stratum that is shaken, the Water will be fetid as well as red : even a shaken Strata, or new Springs bursting out of Chalk, may make the Waters milky, or like thick Cream, and leave their grosser and heavier Parts in their Course, or Sides and Bottom of the Basen, like Cream : for Leaves or Woods of astringent Trees or Shrubs may fall into Chalybeat Springs, and turn the Waters purple, red, blue, or black. These, or the like Alterations, may be the Effects of either Earthquakes or Springs having their old Courses stopt up, and forcing open new Passages through fresh and different Strata of Earths or Minerals ; or from Works carrying on near the Spring-heads, or near some of its lateral Branches, with which it communicates ; or from some Change in the subterranean Air ; as some Springs I have seen, have the Colour of their Waters quite changed before great Winds, Tempests, Rains, &c. 9. As to Honey-dews, it is a well known Observation, that in Summers Mornings during hot Weather, the Leaves of Oaks, especially in great Forests, are covered with, and drop down, a sweet, slimy, balsamic Liquor, like Honey, or melted Manna ; which being rarefied, thinned, and carried into the Air, driven down in Clouds some Distance off, may at Night, when the Air is clear, fall down in a Dew. 10. In the same Manner may the Ascent or Descent of sulphureous Exhalations, collected in the Air, fall down at Night like Butter or Tallow, as it was exhaled in a thick,

phureous, stinking Fog. 11. Nor need Showers of Grain, Fish, Wool, Birds, &c. be surprizing, since such Things cannot resist the Force of Tempests, or Spouts at Sea, that take up Whirlpools of Water, Ricks of Corn and Hay, Roofs of stately Buildings, old fast-grown Trees, &c. when the Turnado dispels, they must drop down at the Distance to which they were carried in the Air. It is also remarkable, that such Rains are never of any great Extent; they reach but a little Way.

77. Great Floods are from, 1. Either sudden and violent, or long and great Rains. 2. From Tides and great Land Floods joined. 3. From opposite Winds forcing up the Sea, and damming back the Land Floods at the same Time, as on *Octo'er* 1st, 1250, *September* 30th, 1555, *Octo-*
ber 22d, 1629, *November* 1660, *November*
 1665, *March* 10th, 1570, *September* 6th, 1592,
December 1600, *December* 26th, 1601, *Fe-*
bruary 23d and 24th, 1602, *March* 1604; in
 all which the great Tide-Rivers had both the
 Tide driven impetuously in by the Wind or
 Hurricane, and the Land Flood kept up, to
 an incredible Destruction of Peoples Lands and
 Cattle. Or, 4. From the *Perigæum* of the
 Moon, especially in its first and last Quarters,
 wherein it comes nearer the Earth; as on *No-*
vember the 5th, 1530, when that fatal Inun-
 dation happened in *Zealand*; *January* 13th,
 1592, *Sandwich* and the Marshes were over-
 flooded; *November* 1st, 1570, *Antwerp* and
 the Coasts of *Holland* were laid under Wa-
 ter;

ter; *December 8th, 1600; January 20th, 1670,* the *Severn* laid *Somerset* and *Gloucester* under Water; *January 23d, 1623, Friesland* was drowned; *February 23d, 1651; August 2d, 1657; August 22d, 1658; September 29th, 1661; May 24th, 1663; September 1st, 1669;* with a Multitude of others, according to *Dr. Wallis*. Such Inundations may happen from the diurnal, annual, and menstrual Motions of the Earth. 6. On the contrary, a violent Tempest of Wind in the same Direction with the Descent of the River, may so drive down its Water before it, and keep out the Sea and Tide, that the Channel of the River and those may be almost dry, and yet mean no more than the daily common Phænomena of Nature, as Winds, Tides, Eclipses, Phases of the Moon, Conjunctions and Oppositions of the Planets, &c. Tables of which would be no less large than needless. 7. Great fatal Floods may happen from great Spouts of Water bursting out of Mountains, or falling from the Clouds, or Torrents from Mountains, after Tempests of Rain.

78. Snow is preceded by Clouds like woolly Fleeces, appearing high, and moving slowly, the Middle dark, and Edges white. The Rising Sun looks pale, Ravens make a great Noise, and Birds flag their Tails, a great cold Wind before. The Air immediately turns warm, as the Clouds thicken. Fifteen Inches deep of new fallen Snow melted, affords ten Lines deep of Water, or one ninth. A

square of new fallen Snow here produced four Pints and a half of Water; but when it had laid twenty-four Hours, above five Pints. 1700 Yards square of that Depth would afford above 270937 Hogheads of Water.

79. The Approach of Hail is known from the Sun's casting a glistering Light at rising, as though reflected by some lucid Body, even when there are few or no Clouds. The Eastern Sky looks pale before Sun-rising, and refracted Rays appear in the thick Clouds, which look fleecy, dusky, and inclining to yellow; they move heavily, though the Wind be brisk, or when the Clouds are of a whitish blue, and expand much, either small Hail or frozen Mists are at hand; the Clouds then seem curdling.

80. After Rains succeeds fair Weather, which with a temperate Air (neither scorching hot nor pinching cold) and salutiferous Wind, (which with us we find to be the W. Wind chiefly) is the most desirable and pleasant. These are the common Signs of fair Weather and Drought: If the Sky is red where the Sun sets, the Clouds high and light; if the Moon looks clear, or her Horns sharp; if great Clouds break, and turn smaller and smaller, especially after heavy and long Rains; if the Rainbow appears after long Rains, if it vanishes all together at once, if it turns lighter and lighter, and the Colours fairer, or if it is in the E. at Night, and its Colours bright, it presages Wind withal. If Mists rise out of Ponds, Rivers, and Lakes, and these vanish; if there is a general

neral Mist on high and low Grounds before Sun-rising, near the Full Moon; if after Sun-setting or before its Rising, a white Mist arises from Waters, Marshes, or Meads, the Morrow is fair and hot; if Dandelyon-down or Pimpernel-flowers are spread out, or Winter-pipe Flowers open in the Morning; if the Sun rises and sets fair and bright without Clouds, or the Clouds vanish in the Sky; if the Moon, being three or four Days old, looks sharp and bright, 'tis fair till full, if not during the whole Moon. A bright Circle about the full Moon promises fair. If the Stars look clear and bright, darting forth their Rays; if little Clouds sink low at E. or S.W. if the Tops of the Hills are clear, and seem farther off; if white woolly Clouds appear N.W. if the Mists or white Clouds that hang over Ponds or Rivers spread no farther; if the blue and yellowish Parts of the Rainbow seem of a very bright and light Colour after a Shower; if the Air and Grass seem full of Spiders Webs; if Bees fly far from their Hives, and come home late at Night; if Gnats gather in great Swarms or Clouds; if Kits and Swallows fly high, or Larks and green Plovers, and sing long. If Water-Fowls flock to Water, and Land-Fowls to Land, N. N.E. and E. Winds bring most dry Weather; if the Wind turns N. E. and fixes there two Days, and no Rain the third Day; nor does the Wind turn S. if it shifts thence to N. E. again, and keeps there two Days, and neither turns S. nor rains the third Day, it will fix mostly there for two or three Months.

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These Changes to the N. are finished in three Weeks time. If the Wind has been chiefly N. for two Months past or more, then turns S. it is often fair for three or four Days; on the fourth or fifth Day comes the Rain, except the Wind shifts N. then the fair Weather continues. Woods or Mountains seeming at a greater Distance, or Sounds lost or weakened in a little Way; or an upper and lower Current of opposite Winds at the same Time; Strings of musical Instruments sounding dull; lengthening and slackening of Cords and Ropes. The high thin Clouds in the W. are red at Night, and then next Morning grey Clouds, or high, small ricked-up grey Clouds, covering the Hemisphere; a long, slow, gradual Ascent of the Mercury; a tedious running out of fresh Floods in Rivers; quick sharp Showers decreasing in Quantity, at longer Intervals; a loud shrill Noise of Water falls from N. E. N. or N. W. after Rain; old Aches and Pains lessening; increased Agility and Alacrity both of Body and Mind, are all Signs of fair Weather at hand. From watery Meteors and Frosts come we to other Meteors.

81. From comparing a Table of near an hundred and twenty great Frosts, the following Observations seem to hold in general: 1. That when the natural and ordinary Course or Temperatures of the Seasons have been irregular, or lost for some time, the Weather often unseasonably cold, it often ends in long and heavy Rains; these frequently in Frosts, one
or

or two whereof mostly sets the Seasons right again. 2. Cold dry Summers are often the Forerunners of rainy Harvests, sooner or later. 3. Rainy Summers, but especially Harvests, are a great Sign of a frosty or severe Winter, as it is the Case of near half the Frosts in the Table. 4. Frosts immediately succeeding long Rains are rarely durable. 5. Great Frosts seldom succeed long Rains immediately, but after the Intervention of one or a few Weeks. *N.B.* What I call great Frosts are both severe and durable, not for six, eight, or ten Days, be they ever so severe. 6. Long Frosts are mostly succeeded by Droughts, and often hot Summers. 7. When the Spring and Summer, after a long Frost, prove unseasonably cold, the next Harvest is often rainy, and the Winter after frosty, then comes a hot and moderately warm dry Summer. 8. If the Summer is full of Tempests of Wind, Thunder, Lightning, Hail and Rains, it is equivalent to a rainy Summer or Harvest, in bringing about a Winter Frost. 9. An uncommon Fertility of the Earth sometimes portends a great Frost, as does Barrenness of Land, Famine, or Dearth next Year. 10. Many long and great Floods near the End of Harvest or Beginning of Winter, indicate hard Frost to follow. 11. Long hard Frosts without Snow are hurtful to the Winter Corns. 12. A Load of Snow preceding or coming with the Beginning of a hard Frost, fertilizes the Earth, if carried off in due Time without a Deluge of Rain and great Floods, and followed by a warm Spring.

Spring. 13. The sooner in the Season great or long Frosts break, the greater Tempests, Storms and Floods: The later in the Season the Thaw comes, it mostly goes off with little or no Rain or Storms. 14. Different Temperatures of the Air will produce a Frost in different Countries, as well as different Heights of the Mercury will produce Rain or fair Weather; for the freezing Point in *England* is 60 or 65; in *Sicily* 55; so a Temperature of the Air, inequal in itself, may seem equal to the Inhabitants of the different Climates. 15. Frosts are either general, as that of 1709, or topical, as that of 1740, which was the most severe in *Britain, France, Germany, &c.* yet was said to be milder in the Islands near the Poles; that the Floods at the same time in *Spain* were said to be as destructive there, as the Frost was here; or the three Years great Drought they endured in 1737, 38, 39; which last, especially the Harvest, was very rainy all over the first Countries. 16. Early and long Frosts going off seasonably, and succeeded by a warm Spring and Summer, with seasonable Rains, leave always a fruitful Year, if not prevented by the Seeds being killed, rotten, or starved under the Clod, or destroyed by Thunder, Lightning and Tempest. 17. A long hard Frost beginning early, as in *October*, or 1st of *November*, promises in general a good, hot, and plentiful Summer to follow. A hard continued Frost setting in with the End of the old Year, or Beginning of the new, threatens a late hard Spring and cold Summer

Summer after, whether dry or wet ; if the last, the preceding Seasons have some time past been irregular ; and another severe Winter may be expected to set them right ; and the sooner it sets in, the better for the next Spring and Summer. 18. An open Winter is portended by an open, dry, or hot Summer ; but if it reach into *October*, the last denotes an open Beginning of Winter, and a colder Latter End and Spring. 19. An early Winter often promises a good Spring, if not prevented by long Frosts. 20. We don't find above two great long Frosts immediately succeeding one another ; but we find four, five, or six rainy Years in a Series, and sometimes as many droughty Years, yea once thirty-six Years Drought and Heat together in the same Country. 21. These Signs foretel a hard Winter, and cold rainy Summer and Harvest, but especially the last. If the long profuse Sweats on Stone, Marble or Brick, and Wainscot Walls and Doors, turn suddenly dry in the Beginning of Winter, and House-eves drop slowly ; if the Birds that yearly change Climates, fly the colder ones early ; some add great Plenty of Hips and Haws ; this held true in 1709, 1715, and 1739. 22. The following presages Frost in general ; the Sun sets broader than usual in a Mist ; and a white Fog sails along low and marshy Grounds. The Moon after the Change shines forth bright with sharp Horns. The Stars seem more bright and twinkling ; Starlings, Swallows, and Felds-fares hasten out of the Northern to the Southern Cli-

Climates early ; Small Birds hoard up Hips, Haws, &c. in Plenty in their Nests and hollow Trees ; cold Dews and white Hoar-frosts begin in the latter End of *August* ; little, low, hovering Clouds fly in the N. when none are visible any where else ; hot Ashes stirred up are blue ; the Fire burns fiercely, with clearer blue Flames, and a greater Heat. 23. The Frost is likely to hold long, if the Wind on the Change of the Moon shifts W. or N.E. if there are several Mornings Hoar-frosts about the latter End of *September* ; if a very rainy Harvest succeeds a cold late Spring, and a cold wet Summer, then some Days fair Weather, and the Wind fixes N. or N.E. intensely cold, with Flakes of Snow, or small Snow and little small Hail. 24. That a Thaw is near, and may be suspected from the Sun's appearing watery at rising, or setting in blueish Clouds, or darting refracted Rays into them, the Stars look dull, and the Moon's Horns blunt ; if the Wind has stood long and very sharp in a Point, then shifts suddenly, and no new Moon near ; if withered Rushes, Reeds, or Flags whistle with the Wind. 25. If the Wind shifts with the Change of the Moon, then returns to its old Quarter in a Day or two, the Frost goes on, though there be a Relent, or small Thaw for the present. 26. Though our Account of Frosts be very lame and deficient, yet we may clearly observe some Periods of most Countries, that great, long and severe ones generally appear within three or four Years of the same Point,

Point, as though they observed some dark Periods of Revolution, as from 38 to 43, 58 to 64, 69, 75 or 6, 20 to 25; such as happen more irregularly, as in the 1st, 9th, or 10th Decade, are often longer and severer. 27. Of 115 remarkable Frosts, about an half of them have been preceded by great and long Rains. Other Indications of a severe Winter are, if the immediately preceding Winter and Summer have been dry and cold, especially with frequent N. and N.E. Winds; if the Sky in *July* and *August* has often been covered with dark black Clouds, which cool the Earth much, and dispose it for a Frost; for a dry Air cools sooner, is heavier, and retains its Cold longer than a moist. Frequent Northern Lights in Harvest, followed or attended by cool clear Weather; or if an unusual Number of large Spots have been on the Sun's Disk for some Time before; for these, by Length of Time, in some Degree weaken or diminish the Force of its Rays, and give the cold Winds greater Liberty to prevail on the Earth and Air: All which concurring, the Cold of the Air must increase, and come to an Extreme.

82. We come to another Kind of Meteors, called *Aurora Boreales*, *Lumen Zodiacum*, or *Northern Lights*; these are no Upstarts, they have been long known. *Andreas Celsus*, Professor of Astronomy at *Upsal*, pronounces them co-eval with the Arctic Pole, having been always common in *Iceland*, *Greenland*, *Lapland* and *Norway*. Our Saxon Chronologers t

early Notice of them in *Britain*, but mostly lesser than the Conclusion of the last and Beginning of this Century have produced. These taken notice of in *Britain*, *Denmark*, *Sweden*, *Germany*, and sometimes in *France*, *Spain* and *Italy*, have been greater, and seem periodical; from 1560 to 1580, they were very common; but from that to 1699 were seldomer seen: then they began to be more frequent and terrible in *Britain*, though scarce noticed in *England* before *March* 1716. After 1720, they declined both in Frequency and Frightfulness, and of late Years have been both seldom and little. They were very frequent in the Beginning of the seventeenth Century; but these of the first two Decades of this Century were both greater, and extended farther from the Poles. The same learned *Celsius*, of thirty-six more remarkable ones observed by himself at *Upsal* from 1716 to 1732, with the State of the Air and Winds on the preceding, present, and following Days, he could not observe that the Air and Winds had any Share in producing them, nor that a notable Cold always attended them, or that they presaged a Change of Weather; on the contrary, he mostly found the Air calmer, clearer, heavier, and fitter for raising and sustaining the Vapours, especially when the Heavens seemed to be in a Flame, (which Observers should carefully distinguish from the lesser Lights) Some Philosophers plead, that both the one and the other of these is the Effect of mere Sulphur and Nitre exhaled from

from the Earth. Others will have the first to be only the Atmosphere of the Sun, or a certain thin, fine, solar Matter, either resplendent of its own Nature, or enlightend by the Sun-Beams circling round the Solar Globe, but extending and revolving itself profusely about the Equator of this Constellation; as the same Solar Atmosphere gives some Light to our Hemisphere, during a total Eclipse of the Sun: So *Celsus*, *Mavianus*, *E. Marcus*, *Kinchius de Duiller*, *Whiston*, &c. But these Speculations do not account for their Revolutions, nor why every clear Sky has them not, nor for their Increase, nor their Variety; for sometimes they rise from a clear Sky, sometimes from white, black, or blood-red Clouds; sometimes the Lights or Streamers of a whitish clear, other times of a yellow, orange, bright vermillion, or blood-red Colour. I have strictly observed them for forty Years past in all Points and Weathers, when the Sky was clear, in all Seasons of the Year; sometimes in the Presence and Light, as well as Absence of the Moon. They were frequentest from the latter End of *March* to the Beginning or Middle of *June*; yet sometimes most terrible in the latter End of Harvest and Beginning of Winter, as in *October* 1699; and mostly indicated a Continuance of the same State of Weather in which they happened, whether it was good or bad. I have seen most of them in the best and most plentiful Years, and fewest in the barren. Sometimes their Motions are very quick, other

times languid, or stood still till they vanished. They mostly appear as Streamers, (which I suppose is what was called Armies fighting in the Air, Battles and Skirmishes;) twice of late Years I observed like a splendid fair Crown, whose Vertex stood directly toward the Zenith, and its inner concave Side to the N. its Knobs most curiously set with brilliant Jewels, the first and fairest stood some Hours fixed. - - - Of above an hundred and sixty of them which have been observed in forty-six Years, only thirteen have fallen in the same Years with Earthquakes, and eight with Comets. They are most frequent and remarkable during and after a hard Frost, which goes away with a clear, warm S. S.W. or W. Wind, without Rain, as in 1716; or after a dry hot Summer, as in *September* and *October* 1747; for in both these the Earth plentifully emits its saline and sulphureous Exhalations, the Cause both of them and of Thunder and Lightning, which seem chi fly to differ in the sundry Altitudes they ascend to in the Atmosphere: Hence the more there is of the one, the less of the other. Frost prevents the Ascent of the grosser, but hinders not the Rising of the more minute exhaling Particles. It is observed, that where the *Auroræ Boreales* are most frequent, they indicate one or more fair, if not clear Days to succeed, provided they seem clear and bright themselves. And if they are frequent about the Beginning of Harvest, they denote it to be rich and plentiful, and a good Season. If they
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are often in Winter, they indicate a sharp Cold to succeed.

83. There is yet another whole Tribe of uncertain Meteors, viz. *Fiery Dragons, Fireballs, Trabes Ignitæ, Lampas Volans, &c.* These probably come from the same combustible Matter as Thunder and Lightning; only there seems this Difference, that the first consist of much smaller Particles exhaled than the last; and therefore require much longer Time to collect in the Atmosphere, as they ascend to a far greater Height, and must be suspended in a much thinner Æther: For such whose Heights have been exactly taken, none of them have been lower than thirty Miles, and others have risen to an hundred; as is evident from their being seen at so great Distances at the same time: For that of *December 5, 1737*, which attended, or rather concluded that terrible æthierial Conflagration, was seen at *Venice*, and to the farthest Point of *Iceland*; and perhaps might have been observed farther, had there been Continents, seeing it made its terrible Explosion over *Kilkenny*; and the Loudness of it through so great a Distance, and so thin an Air, at least two thousand times thinner than ours, which lessens the Sound to a two thousandth Part, will readily prove what Mr. *Whiston* advances, that such a Collection of Vapours of a Mile Diameter, is to such a Collection of the like Vapours, in a great Thunder Storm here below, of scarce twenty Feet Diameter, as the Cubes of their Diameters, or

as 16,000,000 to 1 ; so that the Explosion or Force of such a Ball of Fire would, as to Light, Sound, and Strength, be in the same Proportion also ; and should such a Ball of Fire descend downward, what dreadful Defolation must it make in a Country ? From the Instances of them in this History, I cannot, by comparing them with others, find them to be any Forerunners or Presages of general or particular Calamities to Nations or People, whatever they may be hereafter of the Consummation of all Things. But the fiery Meteor of *December 2, 1739*, at Night, was very different, being of no great Height, though pretty broad, with a Tail ; it went from N. to S. was instantly followed by a Sound (a small Earthquake most likely) somewhat like Thunder at a Distance, and went from S. to N. Quickly after was a great, broad, deep Orange-coloured Halo about the Moon. --- Of seventy-six Years noted for these *Meteors*, only thirty-five of them fall in the Years of *Earthquakes*, and thirty-two with *Comets*, and twelve with *Aurora Boreales*.

84. Earthquakes of all Meteors give the Earth the suddenest and greatest Concussion, and strike its Inhabitants with the most instantaneous and shocking Terror. 1. From the too just Apprehension of their frequent most dreadful Consequences, ruining, overwhelming, and swallowing up Villages, Towns, Mountains, Islands, yea whole Countries or Kingdoms, with their Inhabitants, both rational and brute.

2. From the Notion of pestiferous Steams rising out of the Earth, and affecting Mankind. 3. From their Suddenness and Unexpectedness. 4. From their different Manner of Attacks. 5. From the general Ignorance of their true Causes, whether from Fire, Water, Air, or Exhalations from Sulphur, Vitriol, Nitre, or Iron, &c.

85. From the Histories we may observe, that they have several different Motions; as, 1. Horizontal, wherein they run on in a direct Line, like a Wave of the Sea, heaving up the Earth. 2. Elevating, whereby Islands, Mountains, and Rocks raise up their awful Turrets from the Bottom of the Ocean, or Lakes, or Valleys. 3. Depressing, when Mountains are turned to Seas, Lakes, or Valleys. 4. Inclination, whereby they throw together, or dash Mountains against one another. It is by the second they cause great Chasms or Chinks in the Earth.

86. It is difficult to fix on certain Signs either of their more remote or immediate Approaches, from the great Deficiency we meet with in all their Histories, (a very few late ones excepted;) but by comparing the imperfect Accounts of many together, some of the following have generally been observed to precede them. 1. Great Rains or Moisture, preceded by hot and dry Weather. 2. The Sea rages even in the greatest Calms, swells, and its Waves seem to fight; or it suddenly flies its Bounds, shrinks in, leaves its Channel bare, and its Inhabitants dead. 3. Water in the Bottom of

deep Wells is muddy, and smells of Sulphur. 4. The Sky is covered with yellow or brown Clouds, the Sun and Moon are of strange Colours, as red like Blood, and very broad, or azure, and all Objects seem of the same Colours, or these Luminaries seem dim or dull. 5. Sometimes sudden and great Darknefs. 6. Sometimes the Sea ceases to ebb or flow some Days or Weeks before. 7. Other Times spacious, wide, fiery Meteors sail along the Surface of the Earth, yet seem to keep an equal Distance from the Spectators; this Fire neither burns nor singes Animals or Plants, but as a Kind of meer *Ignis fatuus*. 8. It is ushered in by a sudden Change of the Temperature of the Air, to sharper Cold or glowing Heat. 9. A small grumbling Noise, as at a great Distance, is heard under Ground; at that Instant the winged Tribe take Wings and fly, or clap down close on the Ground.

87. The Cause of some Earthquakes must not only lie deep in the Earth, since we find they shake no less a Compass than *Britain*, *France*, *Germany*, *Switzerland*, &c. at once, allowing for their different Meridians; but they must also be incredibly strong and powerful, seeing they shake the greatest Ranges of the highest Mountains, Valleys, Seas, &c. without the Communications or Vibrations of the Atmosphere. They indiscriminately spend their Fury on Cities, Mountains, and Rocks; on the Wilderness, and fertile Plains; as that of *Possidonius*, mentioned by *Strabo*, wherein a City
of

of *Phœnicia* was swallowed up, two thirds of *Sidon* fell down; it reached as far as *Syria*, the *Cyclades*, and *Eubœa*; stopped the Fountains of *Arethusa* in *Chalcis*, till many Days after, that they burst out at other new Springs; it shook the whole Island by Pieces, till the Earth opened in the Field *Lelantus*, and gave Vent to a Torrent of fiery Clay: or that mentioned by *Plato* in his *Timæus*, related by the *Egyptian* Priests to *Solon* the great *Atbenian* Law-giver, who flourished six hundred Years before *Christ*, that of old time, without the Straits of *Gibraltar*, was a most extensive Island, larger than all *Asia* and *Africa* together, called *Atlantis*, which in one Day and Night was overwhelmed, and swallowed up by the Sea, by a terrible Earthquake and Inundation. The like was the Fate of the famous Island *Manvi* or *Manvi*, a small, rich, and populous Kingdom on the Coast of *Japan*, where the best China in the World was formerly made, and is still found and fetched up by Divers: and that mentioned by *Democles* in *Strabo*, which happened to *Lydia* and *Sonea*, extended as far as *Troas*, demolished *Syrus*, swallowed up many Villages, and turned Fens into great Lakes: or that mentioned by *Demetrius Gahlianus*, which happened over *Greece*, and drowned a great Part of the *Lythiades* Isles, and stopped the hot Baths of *Edepsus* three Days, till they forced new Outlets, threw down the Walls of *Oreus* and seven hundred Houses, with a great Part of *Heracelia*, *Trackinia*, and all *Phalernus*.--

The like happened to the *Lavians* and *Lavifseans*; *Scarphia* was demolished to the Foundation, and seventeen hundred People buried in it, and near a thousand of the *Thronii*: or that of *Pliny* in the Reign of *Tiberius*, which overthrew twelve or thirteen Cities of *Asia*: or that of *St. Augustine de Miracul.* which at once demolished an hundred Cities of *Lybia*: or those which happened in the Reigns of *Trajan*, *Justinian*, &c. And probably by the same Means might an Isthmus between *Calais* and *Dover* be cut off; and another between *Donachadee* and *Portpatrick*, that joined *Scotland* and *Ireland*; as the *Isle of Wight* was torn from *Hampshire* by an Earthquake, *A. D.* 68.

88. From the small Gleaning of the Effects of Earthquakes in this History, and thousands more in other ancient and modern Records, which have not come to my Hands, besides endless that never were recorded, from Ignorance of Letters; from all which it is undeniably plain, that such and so great Alterations has this terraqueous Globe undergone in sundry Ages, by Seas being turned to Land, and Land to Seas, Mountains sunk down into Lakes and Valleys, and others reared up their lofty Turrets from the Bottom of the great Ocean, that it is absolutely impossible now to tell what the Primordial and Post-diluvian State of the Earth was, what Countries were then continuous, contiguous or separated; what were the then Boundaries of Sea and Land; what old Countries lost, or new gained since; what

Com-

Communications, Isthmus's, or Tracts of Land between Continent and Continent, Island and Island were then, and some Ages after, existent, but long since quite lost : This, with Storms, Tempests, and Hurricanes, answers all the Objections that can be raised about peopling far distant Continents before the Use of Navigation : For by the last, (the Use of small Boats, of Beasts Hides, Bark of Trees, or hollowed Trees, having been very early known) some few Persons, at different Times, might be driven into sundry Countries, but neither could, nor dared to return. There may also be still many undiscovered Isthmus's, by which they may remove in small Companies from Country to Country ; but having no Knowledge of Letters, could not possibly transmit their Peregrinations.

89. The Effects of Earthquakes we see are either more slight or trifling, or dangerous and shocking. 1. In Proportion to the Cause, or to the Stowage of the Earth with combustible, or other proper Matter, since they are often more terrible in the hottest Countries, and near Volcano's. 2. As the Cause lies more superficial or deep in the Earth, according to which it shakes a longer or shorter Way. 3. As the Pores of the Earth are more or less obstructed or opened by Frosts, Droughts, Rains, Heats, &c. 4. According to the Situation of Places shaken ; for Cities, Towns, Villages, or Countries in hot Climates, near Volcano's esp receive more Damage than those in tem

together; then they undergo many shocking Convulsions within a short Period; then they are quiet for many Years: But after a long Intermission, the Shock is so much more frightful and fatal.

95. Eruptions and Conflagrations of Volcano's are preceded, or at first attended with Earthquakes. Of these burning Mountains, *Gesendus*, in the Life of *Pierastirins*, says, that they communicate to a great Distance, at a prodigious Depth, under Seas, Mountains, Valleys; as *Vesuvius* with *Ætna*, *Ætna* with the Mountains of *Syria*, under the vast Mediterranean Ocean, and these with the *Arabians*, and they with Mount *Soma* in *Ethiopia*; for in the Year 1633 they all burnt at once; sometimes they burnt alternately; for if one smokes, the other flames; and when the first flames, the last smokes. - - - It is surprizing to what a Height in the Air, and Distance from their Mouths and Funnels they throw forth Stones, Sand, Ashes, Sulphur, &c. For at the great Deflagration of *Vesuvius* in the Reign of *Titus*, the Mount threw Smoke, Ashes, and Cinders over Sea into *Africa*, *Egypt*, and *Syria*; at *Rome* they darkened the Air and Sun; the Mountain shook so at the same time, that it demolished two adjoining Cities, and buried the Inhabitants in the Ruins. Here and now it was that the great *Pliny*, the natural Historian, sacrificed his Life to the Gratification of his Curiosity. At another Eruption in the Emperor *Leo's* Time, its Ashes were scattered
over

over all *Europe*, and dispersed as far as *Constantinople*. Surprizing are the Torrents of melted Minerals they send out.

96. Next to Earthquakes and Eruptions of Volcano's, Comets have been deemed most frightful Meteors and Prodigies in all Ages, and taken for certain Presages of most desolating Calamities, as Plague, Famine, Wars, Revolutions, Death of Princes, &c. For, 1. Philosophers were greatly divided about their Nature; some would have them to be meer Exhalations from the Earth, rising to the Top of the Atmosphere, and there taking Fire; others took them for Exhalations from the Sun, or from some or all of the Planets. Some thought them a Heap of small Stars meeting together accidentally, (because of their unequal Motions) and so appearing for a Time in a visible Mass, till they separated and dwindled away. Some looked on them as meer Meteors. Some took them for the Satellites of the primary, very distant Planets. None before the great Sir *Isaac Newton* discovered them to be a Kind of Planets, having proper, fixed, compact, durable Bodies, moving in very oblique Orbits; and that their Head, Beard, Tail or Hair, is only their Vapour or Atmosphere heated by the Sun. --- 2. From the Uncertainty and Infrequency of their Appearance, and the Ignorance of Astronomers of their Revolutions, from Want of former judicious Observations, which made them seem unnatural and frightful. 3. From their different Forms, some having a
Head

Head, *i. e.* behind or E. of the Sun, and moving from it, therefore has a glowing Atmosphere before it; others S.W. of the Sun have their Vapours heated behind them, which is their Tail; or the Earth being between the Sun and Comet, its Train falls behind it, which being observed by its Sides, seem like Hair. 4. From their different Magnitudes, some being vastly large, as that of 1680; others very small, as are all that have appeared in the eighteenth Century to this Time, either from their unequal Distances, or different Magnitudes, or both. 5. From their different Courses, some keeping the same with the Planets, others have a retrograde or contrary Motion. 6. From their different Colours and Lights, some like a Light in the Middle of a thick Smoke, or a Coal dimly glowing, as that of 1680; or of a yellowish or Gold Colour, like that of 1661; some like Fire, others clear, &c. 7. From their different Continuance with us, as from a few Minutes to several Months. 8. From their sudden and unexpected Appearance. 9. From a turbulent factious Spirit of a discontented Party in all Ages, which take Occasion, even from common Meteors, to irritate, excite, and animate the Vulgar against the Constitution, or some Part of it. Out of two hundred and fourteen Comets, I have collected the Account of in Histories, only sixty-two coincided with Earthquakes the same Year. All these sundry Constitutions of the Air and Weather affect the several Temperaments of human Bodies variously,

riously, in different Countries and Climates; for small Rains falling here at any Time, injure not our Health; but in *Egypt*, where they rarely have any Rain, their seldom small Missings are followed by epidemic Catarrhs, Fevers, Asthmas, &c. But their daily Morning Hoar-Frosts (which supply some Part of their Rain) would not fit us. In some Parts of the Kingdom of *Peru*, they do not know what Rain is; yea, Places at small Distance have very different Seasons; for *Sumatra* and *Java*, but a little asunder, the one is most unhealthy from its great Ridge of Mountains breaking the Clouds, and causing almost daily great Rains, and its many Woods and stagnant Waters in the Valleys; the latter wanting these, is healthy, clear, and pleasant. Nor are the fruitfulest Places always the healthiest; for *Thomas's Island* abounds with all Things but Health.

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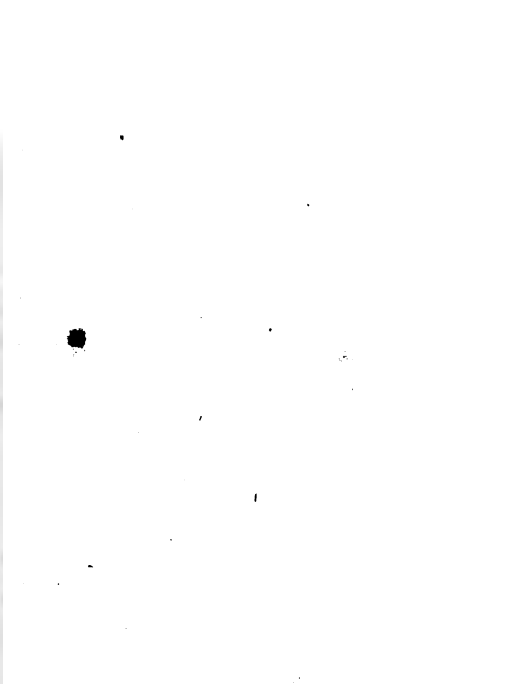
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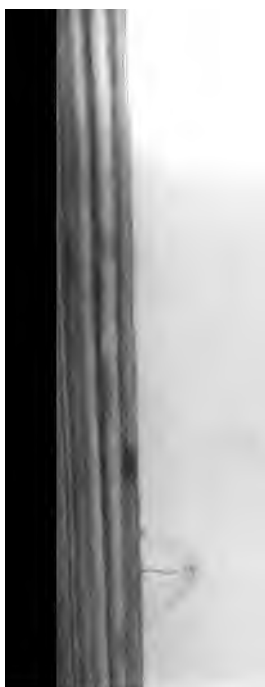
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